M. Phil. International Community Health
Department of General Practice and Community Medicine
University of Oslo

The life and Health Status of Urban Elderly People in Beijing, China

Candidate: Ren Zhenghong
Supervisors: Gerd Holmboe-Ottesen
Bernadette Nirmal Kumar

May, 2002

Acknowledgements

During the whole procedure to conduct this study, my supervisor professor Gerd Holmboe Ottesen gave me many and useful support, guidance and suggestions. Dr. Bernadette Nirmal Kumar also gave me a lot of assistance. Dr. Wang Yan gave me helpful guidance and suggestions when I collected the data. It would have been impossible to carry out the survey if there were no cooperation from Xiao Xia Yuan community. Some students of the School of Public Health, Peking University helped me to do the field work. I gratefully acknowledge all of them. Finally I thank my family for their support during my study.

The field work for this study has been supported by a grant from the Norwegian Ministry of Health, through the Institute for General Practice and Community Medicine, under the auspices of the Norway-China health agreement.

ABSTRACT

The Life and Health Status of Urban Elderly People in Beijing, China

Background Population ageing has becoming an important development issue that requires urgent action. Health, economic and social issues of ageing are inextricably linked to the development process. Living arrangements are influenced by a variety of factors including health status, cultural traditions and social services and support. In turn, living arrangements affect life satisfaction, health and so on. Living alone or only with a spouse is increasingly becoming a trend in the developed countries.

Methods Using deliberate sampling method, we selected a typical mixed community in the urban areas of Beijing. From November 10 to 18, 2001, using a questionnaire, we personally interviewed 90% of the qualified subjects including men and women: 60 years or older, Chinese and living in the urban areas of Beijing for at least 3 years. The present living arrangement and preferred living arrangement were asked. The data on the self-reported chronic diseases were collected by a checklist for the presence of ten common chronic diseases. Information was also collected on the self-reported of limitations in 13 separate activity of daily living (ADL) items. The Chinese version of the Personal Interview SF-36 and the standard methods to score the SF-36 were used to measure the health of the elderly objectively.

Results The population ageing is a fact in Beijing urban areas and seem to be at its early stage. Though living with a spouse and children was the most common living arrangement for the old persons, the rate of those living alone or only with a spouse reached 35.0%. If the conditions allowed, there were 58.4% of the old people who preferred to live alone or only with a spouse. The general prevalence of chronic disease was 80.8%. And hypertension, osteoporosis and coronary heart diseases were the first three common chronic diseases and prevalence were 38.0%, 24.0% and 22.6% respectively. 48.3% of the old people can do all the ADL activities on their own easily, and there were 9.4%, 34.4% and 46.5% with personal care, gross mobility and range of motion limitations respectively. According to the SF-36 test, the health of the old persons was quite good. The score on emotion, social activities and mental was better than that on physical aspects.

Content

I. Introduction……..……..1
1. Population ageing…….1
2. Implication of population ageing……..…3
3. The well being of older people…….5

II. Objectives…….10

III. Methods……..…….11
1. Study setting……11
2. Survey instrument and data management…….……...11
3. Data collection procedure……13
4 Data analysis ……..……...13

IV. Results…….…….…....14
1. Demographic characteristics……..…….14
2. Living arrangements……..…..18
3. Diseases……..…….25
4. SF-36 score…….…….31
5. The evaluation of their lives……..……..37
6. Multivariable analyses……..……...38

V. Discussion……..…….…...40
1. Methodological considerations…….……...40
2. The population and the old persons aged 60 years and older…….……41
3. Living arrangements…….……...43
4. Diseases…….……..45
5. SF-36……...47

6. The evaluation of their lives……....50

VI. Conclusion and Recommendations……..…….51

References……..54

Appendix: The questionnaire……..…….56

Information……..……..…71

Declaration of Consent..……...…...…72

The life and health status of urban elderly people in Beijing, China

I. Introduction

1. Population ageing

Ageing is usually defined as a progressive, generalized impairment of function resulting in a loss of adaptive response to stress and in a growing risk of age associated diseases. Ageing is a natural biological phenomenon and nobody can escape it. It is a human right to seek longevity and healthy ageing. Demographically, the process of which the proportion of persons aged 60 years or older in the total population increase, and reaches the extent that the proportion of persons aged 60 years or older in the total population exceeds 10% is called population ageing. In these cases, the population is called an older population.

One of the main features of the world population in the 20th century has been a considerable increase in the absolute and relative numbers of older people in both developed and developing countries. The number of persons aged 60 years or older is estimated to be nearly 600 millions in 1999, and is projected to grow to almost 2 billions by 2050. At that time the population of older persons will be larger than the population of children (0—14 years) for the first time in human history. The majority of the world's older persons reside in Asia (53%). In 1999, one of every 10 persons was aged 60 years or older; by 2050, the United Nations projects that 1 person of every 5, and by 2150, 1 of every 3 will be aged 60 years or older. The percentage is currently much higher in the more developed regions than in the less developed regions, but the pace of ageing in the developing countries is more rapid, and their transition from a young to an old age structure will be more compressed in time.(1)

China is not only a country with a big population, but also a country with the most aged population. Owing to China's success in implementing a relatively strict family planning programme, the level of fertility is low and the cohorts of children and

young people are relatively small. Moreover, with the accompanying significant decline in mortality during the last few decades, the population in China is rapidly ageing. By the end of 2000, it was estimated that there were 132 million elderly people in China, and the proportion of population aged 60 years and older had reached 10%. In the 21st century, the speed of the population ageing process will be accelerated, and the growth of the elderly population will be much faster than that of any other age groups in China. The number of elderly people in China will finally exceed 322.5 million in 2050; and around 2025—2030, the proportion of the elderly will reach 15% of the total population. After 2030, this proportion of the elderly population in China will continue to grow and reach a level of around 21—22% of the total population within an additional decade beyond 2030.[2]

An increasingly important feature of societal ageing is the progressive ageing of the elderly population itself. The fastest growing age segment in many countries is the "oldest old", defined as persons aged 80 years and over. In 1999, the oldest old made up 11% of the population aged 60 years and older. By 2050, 19% of the older population will be aged 80 years and older. The number of centenarians (aged 100 years or older) is projected to increase 15-fold from approximately 145,000 in 1999 to 2.2 million people by 2050.[1, 3] The importance of the oldest old with regard to policy making will increase markedly in 21st century as a result of levels of morbidity and disability that are much higher than in other population groups, and the fact that the oldest old consume health and social services and benefits far out of proportion to their numbers. Another feature is that the majority of older persons are women. Among those aged 60 years or older, 55% are women. And among the oldest old, 65% are women.[1] In addition, the numbers of ageing women are increasing worldwide. At older ages, women are less likely to be married and more likely to be widowed than men, not only because they survive on average to higher ages, but also because most women marry men several years older than themselves. While more than three quarters (79%) of older men are married on a global basis, less than one half (43%) of older women are married.[1] Because of the special physical, psychological, social and economic characteristics of women, older women should be paid more attention.

2. Implication of population ageing

Population ageing has become an important development issue that requires urgent action. Health, economic and social issues of ageing are inextricably linked to the development process. In the developing countries, the relatively fast and concentrated changes in the age structure take place before social and economic conditions that facilitate and secure transfers of wealth toward the elderly have a chance to emerge, develop or consolidate; instead, the institutional context is characterized by insufficiently developed capital markets, high risk and uncertainty that inhibits adequate private savings, insecure property rights, high inflationary pressures, as well as lack of social security schemes, absence of private pension plans and insufficient health insurance. This sharp incongruence between the advance of the ageing process and the social and institutional context makes developing countries face more serious implication of population ageing.

By 2020, it is projected that three quarters of all death in developing countries could be ageing-related. The largest share of these deaths will be caused by non-communicable diseases (NCDs), such as diseases of the circulatory system (CSDs), cancers and diabetes. Both in the developed and developing world, ischaemic heart and cerebrovascular diseases are the main causes of deaths in old age, followed by neoplasm and then respiratory diseases, largely pneumonia. In Latin America, NCDs are on a steady increase. In Cuba, hypertension prevalence in men and women has reached 34.5% and 27.1%, while diabetes affects 5.7% of women and 2.9% of men. Population surveys in a number of African countries indicate that hypertension rates are on the rise, as is the prevalence of diabetes. According to the American Heart Association, in 1996, cardiovascular diseases in the USA cost US$151.3 billion, including medical treatment and lost productivity from disability.(4) Population ageing has been projected to aggravate the magnitude of mental health problems mainly including dementia and depression. Estimated at 29 million in 1998, the number of people affected by senile dementia in Africa, Asia and Latin America may exceed 55 million in 2020.(5) Visual impairment and vision loss increase dramatically with age. Cataract may have different origins, but they are mostly related to the ageing process. In 1998, there were about 45 million blind people in the world and further 135 million

had low vision. Cataract is responsible for 19 million cases of blindness worldwide. In most countries of Asia and Africa, it accounts for over 40% of all blindness.[4]

A major issue stemming from the ageing of the population is the increasing dependency ratio.[6] The dependency ratio includes the young age dependency ratio and the old age dependency ratio. Because of population ageing, the young age dependency ratio may decline, but the old age dependency ratio will be sure to increase, and the overall dependency ratio will be stable or increase. Since the maintenance of an elderly person is much more costly than that of a child, population ageing will bring a greater economic burden to the world, especially to the developing countries. With population ageing, more people will escape from the labor force market and make the lack of labor force. In addition, the older persons would get pension and benefits for many years and the countries will give a lot of resources to support the older persons. All of these will affect the development including economic development of the countries.

Coupled with demographic changes are the social and economic changes sweeping across most parts of the world, in particular Asia and the Pacific. Consequently, profound changes in family structures have occurred in this region with serious implications for old age support. Demographic changes have altered membership of families in terms of numbers, types and characteristics of kin, both within and across generation, and also in the age structure. Traditionally, it is not uncommon to find households with more than two generations headed by the oldest male person. In such a family structure, the older persons had enormous authority and power over family members through control of family productive resources, such as the family enterprise or land. Whatever the family system, it is generally believed that elderly were treated with reverence, and were cared for and had a place within the family. Today, under the nuclear type family structure, which is becoming more common, elderly persons have practically little or no role or authority over the children's "new families".[7, 8] Clearly, changes in family structure strongly affect caregiving, the long term care health service system and health-related policy-making. The loyalty and obedience of the young, which is closely attached to the control of key productive resources by the elders, is therefore reduced, to the detriment of the care and support which had been offered during old age. Increasing education, urbanization and industrialization have

resulted in more women engaging in wage employment outside the home. Increased female employment outside the home, however, means that less labor is available to provide care for both the young and old in the household.[7]

Concomitant with the rise in education is delayed age at first marriage. As couples delay their marriage they also delay childbearing until relatively late in life, which means that when they themselves are elderly, they will still have to support their fairly young children. The resources committed to investments in children's schooling, and health and nutrition of the younger generations, would mean less would be available to care for themselves and for the elderly, which becomes increasingly serious as their need consequently become greater and their earning diminish. It is quite likely that family decisions may relegate the needs of the elderly to low priority, particularly since, with an increasing life span, the family may have to cope with more than one generation of elderly persons. Fertility has been declining in most countries. The consequent decline in family size has, to some extent, been offset by low mortality levels, but it means that parents now have fewer children to depend on. It also means that there are fewer adult children to share in the care and support of elderly parents.[7, 9]

3. The well being of older people

In the developed world, industrialization and modernization may have eroded familial bonds, but they simultaneously fostered a system of social transfers that effectively operates as a compensatory mechanism to reinforce transfers toward the elderly. In addition, through investments in human capital older individuals are able to command higher levels of income while, as insurance or as a complement, they are open to and actively pursue the option of continuing to participate in the labor force. In developing countries, the elderly access to sources of income is deemed to be far below what is necessary to secure self-sufficiency while their continued participation in the labor force, for a long time a necessity rather than an option, may be endangered by rapid economic change and growing obsolescence of human capital. Furthermore, both in the developed and developing world, the overall demand for care and attention for the elderly will be a function of the prevalence of illness and disability, and of the amount of time lived healthy at older ages. Thus, even if there are compensatory changes in

social transfers and improvements in private sources of support were feasible, the well-being of the elderly will remain compromised. (10)

Since 1980s, many researches have been conducted all over the world about the well being of older people. Many of the researches focus on the living arrangements of older persons. The living arrangements of older persons are of interest for both policy and scientific reasons. First, living arrangements may influence the material and psychological well being and health status of the older generation. A second major reasons for policy concern is the potential trade-off between public (e.g. social security) and private, family-based support for older persons. Traditionally most, though certainly not all, family support was delivered within a co-resident family unit, and a decline in such arrangements is likely to coincide with a rising demand for public provision of some of the services formerly provided by family members. Finally, there is a broader scientific interest in understanding major shifts in family and household composition over time and place, and in trying to understand how family relationships are affected by economic and other social changes in the course of development.(11)

Census information for the United States in 1990 shows that about 75% of white males and females older than 65 lived alone or with a spouse. Roughly two thirds or 65% of white unmarried women and unmarried men live alone. For African-Americans the figures are 51% and 48% respectively. In Western and Northern Europe the prevalence of living alone among the elderly is lower than in the United States, but still well within a range between 15% and 40%. Moreover, the prevalences of living alone in these countries are anticipated to be much higher in the short run since recent trends point to an rapid increase in this type of living arrangements. In most countries of Asia and Latin America, the proportion of all elderly living alone rarely exceed 10%. Countries in the Caribbean occupy an intermediate position, with prevalence of living alone ranging from 10% to 20%. The aforementioned figures for these countries are calculated using as reference the entire elderly population and, therefore, conceal higher levels of living alone among those who do not have a spouse. (10)

Based on the 1990 census data, a large majority of the Chinese elderly live with their children, and the higher the age, the higher the proportion living with their children. Female elderly persons of all age groups are more likely to live with their children, because elderly women are more likely to be economically dependent and widowed. According to the 1998 health longevity survey that sampled elders aged 80 years and older in 22 provinces, most of the oldest old lives with adult sons, but there is a considerable portion of them (more than 17%) living with adult daughters. The proportion of modest old men and women living alone is 8.0% and 10.2%, in contrast to 13.2% and 15.2% for the oldest old males and females, respectively. (12)

Living arrangements are influenced by a variety of factors including marital status, financial well-being, health status, and family size and structure, as well as cultural traditions such as kinship patterns, the value placed on living independently or with family members, the availability of social services and social support, and the physical features of housing stock and local communities. In turn, living arrangements affect life satisfaction, health, and most importantly for those living in the community, the chances of institutionalization. One's living arrangements are dynamic, they change over the life course adapting to changing life circumstances. (11)

Linda Martin cautions not to place inordinate importance on younger and older generations living together. She suggests that "status of the elderly…appears not be guaranteed by virtue of their co-residence with offspring. Rather, status more likely is a function of sex, health and economic resources."(13) Some Asian scholars are beginning to strongly question the continued reliance on family support systems as the best cultural medium to sustain the aged.(13) Although there are a number of theoretical reasons which suggest that living alone might have adverse effects on the health of at least some older people, the empirical evidence tends not to support this, except perhaps in the case of psychiatric morbidity among men. Particularly among the very old, living alone may only be an "attractive" or possible option for those in reasonably good health with good support systems. The psychological effect of living alone, for example, may be damaging for older people who regard this situation as undesirable or stigmatizing but beneficial for who regard it as positive indication of independence and autonomy. Social consequences will vary according to other social support opportunities available. Most elderly people in the developed countries are in

frequent contact with relatives, even though they do not live together, and the proportions at risk of isolation may be small. The reduced possibilities at economies of scale in purchasing adequate housing, heating and food may mean that living alone has adverse consequences for elderly people on low incomes, but no similar effect on the well-off. Lack of domestic services, such as cooking and cleaning, may disadvantage those who lack the relevant skills or ability to undertake these tasks themselves, but have no effect on "competent" elderly people. (14)

Married elderly people have the best health, followed by the single, the widowed and then the divorced. Elderly people living alone, at least in older old age groups, are healthier than their counterparts living with adults other than a spouse, or in some cases, even than married adults. It has developed several mechanisms to explain this. One is the "health protection effect" theory. Marriage or living with other relatives might have beneficial effects on health, including provision of services such as meals, of nursing care when ill, and of care and companionship, and may also bring material advantages, especially for women and control of unhealthy behaviors (for example, unmarried men have higher rates of alcohol consumption than married men). Living alone may be associated with various health-related disadvantages. Another is the "health selection effect" theory. Ill people are less likely to marry or remarry. Those who are widowed, especially at relatively young ages, may also share various characteristics with their deceased spouse, including a common environment, and so themselves be selected for poor health; additionally the stress of bereavement or martial breakdown may itself have negative consequences for health.(15) Healthier older persons are like to live alone, and poor health older persons need more help or can't live independently so that they live with others. But by now, the associations between marital status and live arrangement and health are not very clear.

According to the data from the 1991 Census of Great Britain (the 1% Sample of Anonymised Records), the prevalence of poor health increases with age, and the extent of variation by living arrangement also increase with age. Among 65—74 years old men, those living with a partner and a child have the lowest rate of illness and lone parents and those living alone the highest. Among women of this age, those with a spouse and children (who, within the broad age band would be younger on average) also have slight low rates of long term illness than those in other groups.

Differentiation in the oldest group shown is more marked; in particular rates of poor health are elevated among those who are the parent or parent in law of the household head and, among women, those who are lone parents (living with a never married child). A similar picture is evident when the prevalence of long term illness according to the number of generations in the household are examined. Differences are slight among the younger elderly but in older groups of women are lowest for those in one-generation households. Among men those in three-generation household report the highest prevalence of ill health in the 75—79 and 80—84 year old age groups while at age 85 years and older living in a two-generation household appear most disadvantageous. (15)

Older persons who have income independently are likely to live alone or live with their spouses and are healthier. There is a positive association between incomes and health of older persons. The poorer, the lower the proportion of older persons living alone and the poorer their health.

It is showed that number of surviving children does matter for the probability of elderly to co-reside. Elderly with a large number of surviving children are more likely to co-reside. One explanation of this is that families with higher number of children surviving are selected for characteristics that motivate stronger adherence to the tradition norm of co-residing with parents. Another explanation is that larger number of children surviving is likely to be associated with higher variance in the ages and marital status of children. In such families, there are more likely some children too young to take the paternal responsibilities, when their parents are older than 60 or 65 so that they are more likely to co-reside. (11)

An epidemiology study on common diseases among the elderly in Beijing showed that prostate hyperplasia, deafness, cataract, osteoarthropathy, bone fracture and constipation among elderly were 61.4%, 53.9%, 46.4%, 24.4%, 14.2% and 18.2% in the urban areas, and 65.7%, 64.7%, 44.4%, 14.9%, 9.1% and 23.0% in the rural areas respectively. (16) A survey conducted from May to November 1996 in Chengdu City, Sichuan Province showed that 79.4% of the older people had a history of chronic diseases. As ageing grows, older people's physical condition and daily-life-capacity decline. (17) A survey in the rural areas of Guangdong showed that 96.64% were

independently managing their activities of daily life with 78.08% lived by themselves. 36.31% thought their health status good, 52.80% moderate and only 10.42% bad with 56.05% having had history of chronic illnesses. [18] A study of 804 elderly Chinese in Singapore showed that the majority of elderly people in the survey (94%) were able to live independently, only 9.3% had mental disorders and 78% of the sample had good social resources meaning that relationships were good and family care was available. [19]

II. Objectives

The health status of the elderly is influenced by a variety of factors including demographic characteristics, living arrangements, diseases and limitations in daily life. In turn, health status affect some demographic characteristics, living arrangements and limitations in daily life. Living arrangements are also influenced by a variety of factors including demographic characteristics, diseases and limitations in daily life. Our overall objective is to study the health and living conditions of the older people in Beijing, China. The specific objectives include:

Objective1:

To describe the life and health status of the urban elderly people in Beijing. The life status includes the demographic characteristics, the living arrangements, the diseases and limitations in daily life. The diseases and limitations in daily life of course can show the health status, but different diseases and limitations in daily life have different impacts on one's life.

Objective 2:

To determine if there are any differences in health by living conditions. The questions include:

- Are their health status different for the elderly people with different demographic characteristics?
- Are their health status different for the elderly people with different living arrangements?

- Are their health status different for the elderly people with different diseases?
- Are their health status different for the elderly people with different limitations in daily life?

III. Methods

1. Study setting

The study was carried out in a mixed community[1] in Beijing in November, 2001. In the community, there were 1944 persons with different ages, education, professions, incomes and units among whom there are about 350 older persons aged 60 years or older. According to the census conducted in 1999, the proportion of the old persons aged 60 years or older in the total population was about 13.6%. Considering that there are some units in Beijing, for example, universities, in which there are more young people, the proportion of old persons aged 60 years old or older among the total population in the community was the same as that in the whole Beijing population. In addition, there are good cooperation between the community and us.

All Chinese persons aged 60 years or older living in Beijing urban areas for at least 3 years in the community were invited to take part in the study. Each old person in the study was interviewed with a structured questionnaire in his/her home. Some old persons including men and women were asked to participate in focus group discussions.

2. Survey instrument and data management

The questionnaire consisted of questions on household demography[2], living arrangements, quality of life, chronic diseases (self-reported), daily life functions and the Chinese version of the Personal Interview SF-36.

[1] A community in Beijing is a group of people living in a neighourhood that has been defined according to the government regulations. This is considered to be mixed as in the past people might have been allocated these lodgings according to their jobs, others have just lived there because of their families but may not be working in the same units.

[2] Though questions on smoking & drinking were included these have not been analyzed as part of this thesis and will be used at a later stage.

The data on the self reported chronic diseases[3] were collected by a checklist for the presence of ten common chronic diseases. Each respondent was asked specifically if he had ever suffered from coronary heart diseases, hypertension, cerebrovascular diseases, cancers, diabetes, psychotic diseases (such as senile dementia and depression), cataract, respiratory infections (such as chronic tracheitis or bronchitis), bone and joint diseases (such as osteoporosis), senile deafness and other.

Information was also collected on the self-reported of limitations in 13 separate activity of daily living (ADL) items which were divided into three different clusters:

(1) limitations in personal care – four items (a. Bathe; b. Dress; c. Get up and out of bed; and d. Use the toilet.);
(2) gross mobility limitations – three items (a. Walk one mile; b. Use a ladder to climb to a storage place at least 5 feet in height; and c. Sweep the floor or courtyard.);
(3) range of motion limitations – six items (a. Carry a 10 kg weight for twenty yards; b. Use a hand-pump to pump up a bicycle; c. Stand up from a squatting position on the floor; d. Sit in a squatting position on the floor; e. Get up from a sitting position on a chair or stool without help; and f. Crouch or stoop).

These items were adapted from an instrument developed by Mohammed O. Rahman[(20)] and adapted to the local conditions of urban Beijing, based on the pilot testing of the original ADL and focus group discussions.

In the questionnaire, each ADL item had a three level score: “can do on their own easily” (scored as 1); “can do on their own with difficulty” (scored as 2); and “unable to do on their own” (scored as 3). For further analyses, the three level score for each ADL item was initially collapsed into a dichotomous measure: (i) can do on their own easily (scored as 0); versus (ii) can do with difficulty or unable to perform the activity (scored as 1). Then, the dichotomous item measures for each of the clusters were summed to construct a new aggregate variable so that we got three new aggregate variables: personal care limitation score ranging from 0—4, gross mobility limitation score ranging from 0—3 and range of motion limitation score ranging from 0—6.

[3] The list of chronic diseases to be included was determined by the 10 most common chronic diseases stated by the official health statistics in China. In addition these were then checked through the piloting and focus group to ensure that the participants were able to understand and answer questions regarding.

Each of the three summary score was finally dichotomized into (i) can do all these items easily (scored 0); versus (ii) can do with difficulty or unable to do one or more items (scored 1).

The Short Form 36 (SF-36)[4] is an instrument assessing participant's life quality generally accepted all over the world now. It measures one's health on the eight aspects: physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional and mental health. It is confirmed that it has high reliability and validity, and it is reported that SF-36 is adapted to Chinese population.(21) In the study, the personal interview SF-36 and the standard method to score the SF-36 were used. SF-36 items and scales are scored so that a higher score indicates a better health state. For example, functioning scales are scored so that a high score indicates better functioning and the pain scale is scored so that a high score indicates freedom from pain. After data entry, items and scales are scored in three steps: (i) item recording, for the 10 items that require recording; (ii) computing scale scores by summing across items in the same scale (raw scale scores); and (iii) transforming raw scale scores to a 0—100 scale (transformed scale scores).(22)

3. Data collection procedure

Before the survey, with the help from the community, informed consent was obtained from all subjects. From Nov. 10 to 18, 2001, we went to their home to interview them personally. The interviewers were high-grade undergraduate students from School of Public Health, Peking University. Before the start of the study, they were trained for one day and examined to be qualified to the survey. During the survey, there was supervision in the site now and then.

4. Data analysis

Having checked the raw information, we entered the data using double-entry in EPI INFO. During the entry, we checked the legality of the data including the range of variables and the agreement between variables in order to ensure the quality of the data is high.

The scores of the living arrangements were grouped into two categories (living alone or only with a spouse and living with others including their children) for further analysis. The Chi-square test or Fisher's exact test was used to compare proportions, the Student's t-test was used for comparing means, and the Mann-Whitney U test was used for non-normal data. The effects of gender, age, education, marital status, diseases, health and so on on the scores of the living conditions were analyzed by multivariate logistic regression. Forward Stepwise (Wald) method was used to select variables. P_{in}=0.05 and P_{out}=0.10. The P-values ≤ 0.05 were considered statistically significant. All data analyses were carried out by the SPSS for Windows 9.0 program.

IV. Results

320 old persons out of the total population of 1944 in the community were qualified to be the subjects of the study. They were the persons who were older than 60 years, Chinese and had stayed in Beijing urban areas for at least 3 years. We interviewed 282 old persons completely, and 6 incompletely. 11 old persons refused to be interviewed and 23 could not be found in the community during that time, among whom 14 were men and 20 were women. The response rate from the 320 old persons was thus 90.0%, and the completed response rate was 88.1%.

1. Demographic characteristics

A. Sex and age

As can be seen from table 1, among the 288 old persons, there were slightly more men than women. The age range was 60—90 years, and the median was 66 years. Nearly 70% were under 70 years and only less than 4% were more than 80 years. The distribution of sex in the different age groups showed no difference.

B. Birth place

40% of the subjects were born in urban areas and 60% born in rural areas. The difference of age between the persons born in urban areas and rural areas was not

[4] The researchers have obtained permission from SF-36 to use this instrument in this study. SF-36 has provided guidance with regard to the translated Chinese Version.

statistically significant. The distribution of sex in the urban area born and rural area born groups was in balance.

Table 1 The demographic characteristics

	Frequency	Percent
Sex		
Men	149	51.7
Women	139	48.3
Age		
60----	110	38.2
65----	83	28.8
70----	57	19.8
75----	27	9.4
80--90	11	3.8
The time the subjects had stayed in Beijing urban areas		
3----	5	1.7
10----	6	2.1
20----	16	8.6
30--84	261	90.6
Birth place		
Urban	117	40.8
Rural	170	59.2
Educational level		
No	52	18.1
Primary school	54	18.8
Secondary school	39	13.5
High school	52	18.1
Bachelor or above	91	31.6
Marital status		
Married	252	87.5
Single	36	12.5
Former occupation		
Worker	96	33.8
Peasant	6	2.1
Housewife	11	3.9
Health worker	13	4.6
Teacher	23	8.1
Researcher	33	11.6
Engineer, Designer and Consultant	13	4.6
Common administrator	24	8.5
Administrative personnel	31	10.9
Commercial personnel	15	5.3
Artist and editor	5	1.8
Military personnel	10	3.5
Monetary personnel	4	1.4

C. The time stayed in Beijing

The range of the time which the subjects had stayed in Beijing urban areas was 3—84 years, and the median was 47 years. From table 1, it can be seen that more than 90.0% had stayed in Beijing urban areas for more than 30 years.

D. Education

Among the old persons, nearly 20% had no degrees but more than 30% had bachelor degree or above. The women had lower educational levels than the men. The persons born in rural areas had lower educational levels than those born in urban areas ($p<0.001$). More of the oldest persons had no or lower educational levels while more of the younger elderly had bachelor degree or above ($p=0.001$). There was no relationship between educational level and the time they had stayed in Beijing urban areas.

E. Marital status

Of the 288 old persons, none had never been married. More than 85% were married and more than 10% were widowed. Only one was divorced and 9 remarried. More old women than men were divorced or widowed ($p=0.001$).

F. Former occupation

There was a range of occupations that the elderly had been engaged in before retirement. However, worker, researcher and administrative personnel were the first three occupations.

G. Children

The range of the number of the subject's children was 0—8 and the median was 2. Only 1 person had had no child at all. More than 70% had 2 or 3 children and more than 5% had more than 4 children. There were no difference in the number of children between men and women. The persons born in rural areas, divorced or widowed, with lower degrees and the highest age had more children.

The range of number of the sons the old persons had was 0—5 and the median was 1. Less than 20% had no sons. Nearly 40% had more than one son. There were no

differences in the number of sons between the sexes and in marital status groups. The old persons born in rural areas or with lower educational levels had more sons.

The range of number of daughter was 0—6, and the median was 1. More than 20% had no daughters. More than 45% had one daughter. There were no difference in the number of daughters between the sexes and educational level groups. The oldest persons, born in rural areas or the divorced or widowed persons had more daughters.

The range of number of married children was 0—8, and the median was 2. More than 95% of the elderly had married children. There were no differences in the number of married children between the sexes. The persons born in rural areas, divorced or widowed, with lower educational level and in the highest age group had more married children.

More than 75% had no unmarried children. There were no differences in the number of their unmarried children between the sex, birth place and degree groups.

H. Work and economic status

Among the 288 old persons, only 1 was still working and had not retired. Among the retired 286 old persons, 44 or 15.38% had found some kind of work to do after they retired. More retired old men ($p<0.001$), more retired old persons with high educational level ($p<0.001$), and more married or remarried retired old persons ($p=0.03$) were still working.

The range of the money available for the subjects to be spent every month was 200—4000 RMB, and the median was 1000 RMB. About 5% had no more than 500 RMB available to be spent per month and about 15% had more than 2000 RMB available to be spent per month. The persons born in urban areas ($p=0.02$), the persons with high educational levels ($p<0.001$) and married persons ($p=0.001$) had more money to be spent every month.

Among the 287 old persons, 266 (92.7%) had pensions, only 6 (2.1%) got money from insurance, 11 (3.8%) were living on their savings, 67 (23.3%) could get money from their children and only 19 (6.6%) got money from their work income. More men

(p=0.03), more persons born in urban areas (p=0.002), more persons with high educational levels (p<0.001), more of the youngest elderly (p=0.028) and more married old persons (p=0.009) had pensions. More women (p=0.008), more persons with lower educational levels (p=0.006) and more single old persons (p<0.001) got support from their children.

2 Living Arrangements

The living arrangements of the old persons are shown in table 2. More than 1/3 lived alone or only with spouse, and more than 50% lived with children.

Table 2 The living arrangements of the old persons

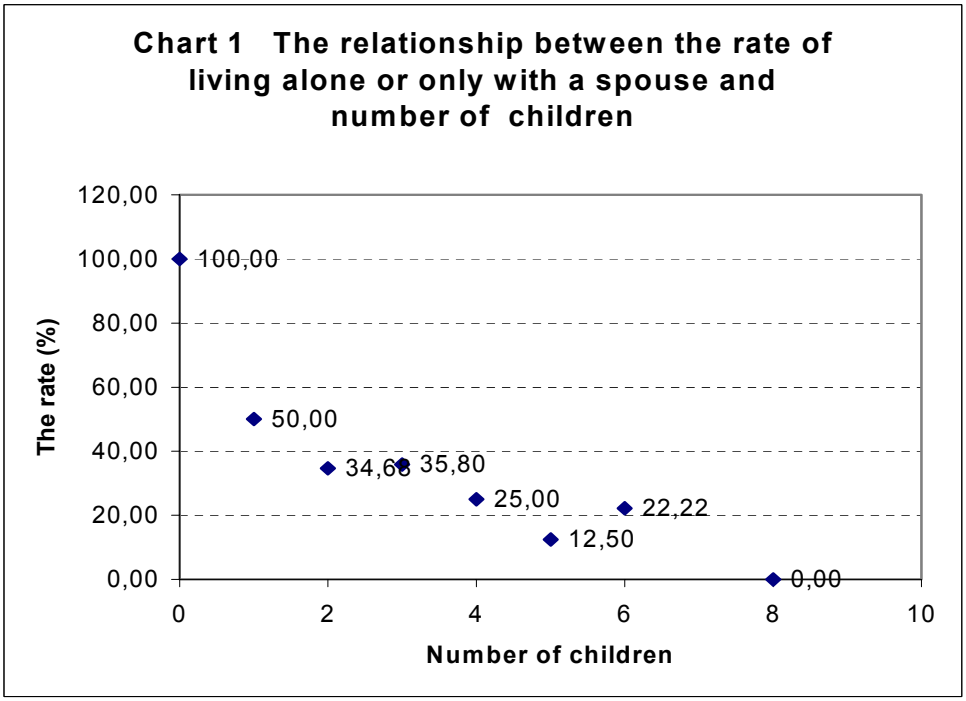
Living arrangements	Frequency	Percent
Live alone	3	1.0
Live only with spouse	98	34.0
Live only with children	29	10.1
Live with spouse and children	127	44.1
Live with spouse and others	25	8.7
Live only with others	6	2.1
Total	288	100.0

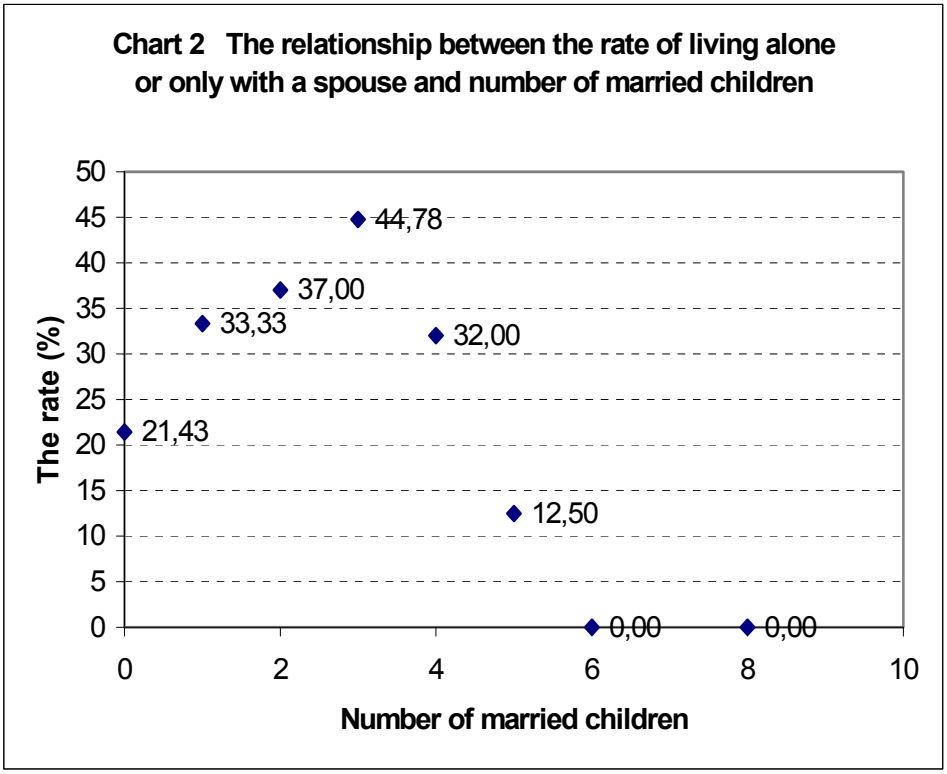
If we grouped the living arrangements into two categories: live alone or only with a spouse versus live with children or others, we could see that there were 35.0% living alone or only with a spouse. The difference in their living arrangements between the sex groups was not statistically significant. There were no differences in living arrangements among the age groups. More persons born in urban areas (p<0.001), more persons with higher educational levels (p<0.001) and more married persons (p<0.001) were living alone or only with a spouse.

Table 3 The living arrangements of the old persons by their demographic characteristics

	Living arrangements		Total
	Lived alone or only with spouse (%)	Lived with children or others(%)	
Total	101 (35.1)	187 (64.9)	288
Sex			
Men	53 (35.6)	96 (64.4)	149
Women	48 (34.5)	91 (65.5)	139
Age			
60----	73 (37.8)	120 (62.2)	193
70----	27 (32.1)	57 (67.9)	84
80--90	1 (9.1)	10 (90.9)	11
Birth place			
Urban	57 (48.7)	60 (51.3)	117
Rural	44 (25.9)	126 (74.1)	170
Educational level			
Primary school or below	22 (20.8)	84 (79.2)	106
Secondary or high school	36 (39.6)	55 (60.4)	91
Bachelor or above	43 (47.3)	48 (52.7)	91
Marital status			
Married	98 (38.9)	154 (61.1)	252
Single	3 (8.3)	33 (91.7)	36

Though the difference in living arrangements of the persons having different number of children was not statistically significant ($p=0.067$), it seemed that there was a negative association between the rate of living alone or only with a spouse and number of children (See chart 1). There was a positive association between living arrangements and number of sons ($p=0.001$). The more sons the subjects had, the lower the rate of living alone or only with a spouse. But there were no relationship between living arrangements and number of daughters. There were also no relationship between living arrangements and number of married children. But from chart 2, we could see that before they had three married children, the rate of living alone or only with a spouse increased, after that the rate would decrease. More persons who had not any unmarried children lived alone or only with a spouse ($p<0.001$).





Among the 150 old persons who lived with children, more persons lived with married sons or/and unmarried children. There were no difference between the sexes, the birth

place groups and the educational level groups. Among the age groups, only the difference of living with married daughters was statistically significant (p=0.01). More of the oldest elderly lived with married daughters. For the marital status groups, only the difference of living with married daughters was statistically significant (p=0.01). Fewer single persons lived with married daughters.

Other persons living with the old persons were mainly classmates or colleagues, grandson(s) or granddaughter(s), nephew and nurses. The persons living with the old persons except sons or daughters were mainly grandsons or granddaughters.

The advantages and disadvantages of their living arrangements which were mentioned are listed in table 4 and 5. It shows that the old persons paid more attention to the advantages. For the persons living alone, the first three advantages of this living arrangement which were mentioned were “more freedom”, “more peace and quiet” and “no interference”. The most important disadvantage was “can’t get the care regularly”. For the persons living only with a spouse, the first three advantages were “more peace and quiet”, “no interference” and “more freedom”, and the first disadvantage was “can’t get the care regularly”. For the persons living only with children, the first three advantages were “more care”, “more kindness in the relationship with their children” and “more fun”, and the most important disadvantages were “loneliness” and “interference with each others”. For the persons living with spouse and children, the first three advantages were “more kindness in the relationship with their children”, “more care” and “more fun”, and the first three disadvantages were “too noisy”, “interference with each others” and “other”. The differences of the opinions of the old persons with different characteristics including gender, age, birth place, educational levels, and marital status on their living arrangements were not statistically significant.

Table 4 The advantages of the living arrangements

Living arrangements	Number	The advantages of the living arrangements						
		More peace and quiet (%)	More fun (%)	More freedom(%)	More kindness in the relationship with children(%)	No interference (%)	More care (%)	Other (%)
Living alone	3	2 (66.7)	0 (0.0)	3 (100.0)	0 (0.0)	2 (66.7)	0 (0.0)	0 (0.0)
Living only with a spouse	98	85 (86.7)	4 (4.1)	72 (73.5)	5 (5.1)	74 (75.5)	8 (8.2)	7 (7.1)
Living only with children	29	5 (17.2)	16 (55.2)	7 (24.1)	20 (69.0)	3 (10.3)	27 (93.1)	2 (6.9)
Living with spouse and children	126	20 (15.9)	60 (47.6)	22 (17.5)	84 (66.7)	20 (15.9)	83 (65.9)	14 (11.1)
Living with spouse and others	24	7 (29.2)	9 (37.5)	10 (41.7)	8 (33.3)	9 (32.1)	7 (29.2)	0 (0.0)
Living with others	6	3 (50.0)	2 (33.3)	4 (66.7)	2 (33.3)	4 (66.7)	2 (33.3)	0 (0.0)

Table 5 The disadvantages of the living arrangements

Living arrangements	Number	The disadvantages of the living arrangements							
		Can't get the care regularly(%)	Too peace and quiet (%)	Too noisy (%)	Easy to have contradiction (%)	No freedom (%)	Loneliness (%)	Interference with each other(%)	Other (%)
Living alone	3	2 (66.7)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (33.3)
Living only with a spouse	98	32 (32.7)	9 (9.2)	8 (8.2)	1 (1.0)	2 (2.0)	11 (11.2)	4 (4.1)	16 (16.3)
Living only with children	29	0 (0.0)	1 (3.4)	2 (6.9)	2 (6.9)	3 (10.3)	5 (17.2)	5 (17.2)	1 (3.4)
Living with spouse and children	126	8 (6.3)	3 (2.4)	27 (21.4)	11 (8.7)	9 (7.1)	3 (2.4)	27 (21.4)	27 (21.4)
Living with spouse and others	24	3 (12.5)	1 (4.2)	7 (29.2)	0 (0.0)	0 (0.0)	3 (12.5)	4 (16.7)	6 (25.0)
Living with others	6	2 (33.3)	2 (33.3)	0 (0.0)	0 (0.0)	0 (0.0)	2 (33.3)	0 (0.0)	0 (0.0)

It seemed that the old persons living alone or only with a spouse thought there were more advantages and fewer disadvantages for their living arrangements than the old persons living with children or others. But the differences were not statistically significant

In the questionnaire, there is a question "If the conditions were suitable, in your opinion, what kind of living arrangement is your preference? And why?" Their preferred living arrangements were listed in table 6.

Table 6 The preferred living arrangements

Living arrangements	Frequency	Percent
Living alone (1)	14	4.9
Living only with a spouse (2)	153	53.5
Living only with children (3)	22	7.7
Living with spouse and children (4)	91	31.8
Living with spouse and others (5)	4	1.4
Living with others (6)	2	0.7
Total	**286**	**100.0**

It showed that more old persons preferred living alone or only with their spouses and fewer old persons preferred living with others and with their children. The number of the persons who preferred to live alone or only spouse was more than that of the persons who preferred to live with children. If we dichotomized into "living alone or only with spouse" and "living with children or others", there were no relationship between the preferred living arrangements and sex and birth place. The differences of the preferred living arrangements among the age groups and the educational level groups were statistically significant. More of the younger persons and more persons with high educational levels preferred to live alone or only with a spouse. More married persons preferred to live alone or only with a spouse ($p=0.004$). There were many reasons for their preferred living arrangements. But for the old persons who preferred living alone or only with a spouse, the main reasons were "need for peace and quiet" and "need for freedom or no interference". And for the old persons who preferred living with children, the main reasons were "need for care" and hope children to company them or "afraid of solitude".

Table 7 The preferred living arrangements of the old persons with the different characteristics

	The preferred living arrangements						Total
	1	2	3	4	5	6	
Total	**14 (4.9)**	**153 (53.5)**	**22 (7.7)**	**91 (31.8)**	**4 (1.4)**	**2 (0.7)**	**286**
Sex							
Men	4 (2.7)	85 (57.8)	5 (3.4)	50 (34.0)	2 (1.4)	1 (0.7)	147
Women	10 (7.2)	68 (48.9)	17 (12.2)	41 (29.5)	2 (1.4)	1 (0.7)	139
Age							
60----	7 (3.6)	117 (60.6)	7 (3.6)	59 (30.6)	1 (0.5)	2 (1.0)	193
70----	6 (7.2)	35 (42.2)	11 (13.3)	28 (33.7)	3 (3.6)	0 (0.0)	83
80—90	1 (10.0)	1 (10.0)	4 (40.0)	4 (40.0)	0 (0.0)	0 (0.0)	10
Birth place							
Urban	6 (5.1)	67 (57.3)	9 (7.7)	34 (29.1)	1 (0.9)	0 (0.0)	117
Rural	8 (4.8)	85 (50.6)	13 (7.7)	57 (33.9)	3 (1.8)	2 (1.2)	168
Educational level							
Primary school or below	8 (7.7)	38 (36.5)	18 (17.3)	38 (36.5)	2 (1.9)	0 (0.0)	104
Secondary or high school	2 (2.2)	57 (62.6)	2 (2.2)	27 (29.7)	2 (2.2)	1 (1.1)	91
Bachelor or above	4 (4.4)	58 (63.7)	2 (2.2)	26 (28.6)	0 (0.0)	1 (1.1)	91
Marital status							
Married	4 (1.6)	150 (60.0)	2 (0.8)	89 (35.6)	4 (1.6)	1 (0.4)	250
Single	10 (27.8)	3 (8.3)	20 (55.6)	2 (5.6)	0 (0.0)	1 (2.8)	36

In regard to the association between the preferred living arrangements and the number of children, more persons having more children preferred to live with children or others ($p=0.004$). More persons having fewer sons preferred to live alone or only with a spouse ($p<0.001$). More persons having more married children preferred to live with children or others ($p=0.010$). There were no associations between if they lived alone or only with a spouse, or lived with children or others and number of daughters. The difference of the preferred living arrangements between having or not unmarried children was not statistically significant.

Among the old persons who preferred living with children, more old persons preferred to live with sons, especially married sons.

3. Diseases

A. Chronic diseases

In the study, we asked the respondents to report what kind of chronic diseases[5] they had suffered from. Table 8 listed the chronic diseases the subjects had suffered from.

From table 8, we can see that in general, hypertension, osteoporosis and coronary heart diseases were the first three chronic diseases the old persons had suffered from. Except for gender, the characteristics including birth place, educational level, marital status and living arrangements did not change the kind and order of the first three chronic diseases the old persons suffered from. Hypertension and coronary heart diseases were the first and third commonest chronic disease among men and women separately. Cerebrovascular diseases were the second commonest chronic disease of old men, and osteoporosis was the second commonest chronic disease of old women. More women suffered from coronary heart diseases, cancers and osteoporosis. There were no association between their birth place, educational level and marital status and the all chronic diseases. More of the oldest persons suffered from cerebrovascular diseases, cataract and senile deafness, but for the other chronic diseases, there were no statistical significant differences among the age groups. More old persons lived with their children or others suffered from senile deafness.

From table 9, we can see that less than 20% did not suffer from any chronic diseases and more than 80% suffered from chronic diseases. The general prevalence of the common chronic diseases was 80.8%. More than 50% suffered from more than one chronic disease and the maximum number of the chronic diseases one had suffered from was 6. For all characteristics we paid attention to, the differences of the number of the chronic diseases were not statistically significant.

[5] This list is not exhaustive but includes only some of the most important diseases based on certain criteria see page 12.

Table 8 The cases of the chronic diseases reported by the old persons

	Number (n)	The chronic diseases										
		Coronary heart diseases (%)	Hyper-tension(%)	Cerebrovas-cular diseases(%)	Cancers (%)	Diabetes (%)	Psychoses (%)	Cataract (%)	Respiratory infections (%)	Oste-oporosis (%)	Senile deafness (%)	Other (%)
Total	**287**	**65 (22.6)**	**109 (38.0)**	**49 (17.1)**	**9 (3.1)**	**33 (11.5)**	**3 (1.0)**	**45 (15.7)**	**14 (4.9)**	**69 (24.0)**	**18 (6.3)**	**94 (32.8)**
Sex												
Men	148	26 (17.6)	55 (37.2)	29 (19.6)	0 (0.0)	15 (10.1)	2 (1.3)	17 (11.5)	4 (2.7)	25 (16.9)	12 (8.1)	54 (36.5)
Women	139	39 (28.1)	54 (38.8)	20 (14.4)	9 (6.5)	18 (12.9)	1 (0.7)	28 (20.1)	10 (7.2)	44 (31.7)	6 (4.3)	40 (28.8)
Age												
60----	192	44 (22.9)	70 (36.5)	26 (13.5)	7 (3.6)	25 (13.0)	1 (0.5)	23 (12.0)	6 (3.1)	48 (25.0)	7 (3.6)	63 (32.8)
70----	84	20 (23.8)	35 (41.7)	19 (22.6)	2 (2.4)	7 (8.3)	1 (1.2)	21 (25.3)	8 (9.5)	21 (25.0)	8 (9.5)	26 (31.0)
80—90	11	1 (9.1)	4 (36.4)	4 (36.4)	0 (0.0)	1 (9.1)	1 (9.1)	1 (9.1)	0 (0.0)	0 (0.0)	3 (27.3)	4 (45.5)
Educational level												
Primary school or below	106	22 (20.8)	45 (42.5)	22 (20.8)	5 (4.7)	8 (7.5)	1 (0.9)	20 (18.9)	8 (7.5)	26 (24.5)	10 (9.4)	27 (25.5)
Secondary or high school	90	22 (24.4)	35 (38.9)	12 (13.3)	2 (2.2)	13 (14.4)	1 (1.1)	11 (12.2)	3 (3.3)	24 (26.7)	5 (5.6)	28 (31.1)
Bachelor or above	91	21 (23.1)	29 (31.9)	15 (16.5)	2 (2.2)	12 (13.2)	1 (1.1)	14 (15.4)	3 (3.3)	19 (20.9)	3 (3.3)	39 (42.9)
Marital status												
Married	251	58 (23.1)	98 (39.0)	43 (17.1)	8 (3.2)	29 (11.6)	3 (1.2)	37 (14.7)	10 (4.0)	58 (23.1)	17 (6.8)	82 (32.7)
Single	36	7 (19.4)	11 (30.6)	6 (16.7)	1 (2.8)	4 (11.1)	0 (0.0)	8 (22.2)	4 (11.1)	11 (30.6)	1 (2.8)	12 (33.3)
Living arrangements												
Living alone or only with a spouse	101	25 (24.8)	44 (43.6)	19 (18.8)	3 (3.0)	14 (13.9)	1 (1.0)	20 (19.8)	4 (4.0)	30 (29.7)	2 (2.0)	35 (34.7)
Living with children or others	186	40 (21.5)	65 (34.9)	30 (16.1)	6 (3.2)	19 (10.2)	2 (1.1)	25 (13.4)	10 (5.4)	39 (21.0)	16 (8.6)	59 (31.7)

Table 9 The number of the chronic diseases the old persons suffered from

	The number of the chronic diseases							Total
	0	1	2	3	4	5	6	
Total	**55**	**82**	**76**	**39**	**22**	**9**	**4**	**287**
Sex								
Men	30	48	39	16	11	3	1	149
Women	25	34	37	23	11	6	3	139
Age								
60----	45	51	46	29	16	4	1	192
70----	6	30	28	7	6	5	2	84
80--90	4	1	2	3	0	0	1	11
Educational level								
Primary school or below	18	28	30	19	7	3	1	106
Secondary or high school	15	29	26	8	10	1	1	90
Bachelor or above	22	25	20	12	5	5	2	91
Marital status								
Married	48	74	64	34	20	7	4	251
Single	7	8	12	5	5	2	0	36
Living arrangements								
Living alone or only with a spouse	13	35	22	15	9	5	2	101
Living with children or others	42	47	54	24	13	4	2	186

B. Acute diseases

Among the 288 old persons, more than 20% suffered from acute diseases in the last month (Oct. 2001). For all characteristics we paid attention to, the differences of the morbidity of acute diseases were not statistically significant.

Though there were eight acute diseases they had suffered from (including fracture, diarrhea, injury and toothache), cold was the most common acute disease. Among the 53 persons who had suffered from acute disease and knew what kind of acute disease they had suffered from, 36 (67.9%) had suffered from a cold during the last month.

Table 10 The morbidity of acute diseases among the old persons in October 2001 when we conducted the survey

	Number (n)	Cases of the acute diseases	Percent
Total	**288**	**61**	**21.2**
Sex			
Men	149	26	17.4
Women	139	35	25.2
Age			
60----	193	44	22.8
70----	84	15	17.9
80--90	11	2	18.2
Educational level			
Primary school or below	106	28	26.4
Secondary or high school	91	13	14.3
Bachelor or above	91	20	22.0
Marital status			
Married	252	52	20.6
Single	36	9	25.0
Living arrangements			
Living alone or only with a spouse	101	24	23.8
Living with children or others	187	37	19.8

C. ADL limitations

Among the 288 old persons, 139 or 48.3% could do all the ADL activities on their own easily. However there were more than 50% who could do with difficulty or were unable to perform at least one of the 13 activities. Table 11 showed the three different cluster ADL limitations and the relationship of the three different cluster ADL limitations and some characteristics of the old persons. There were no statistical significant difference of personal care limitations between men and women. But more women had gross mobility limitations and range of motion limitations. Among the age groups, the differences of the three different cluster ADL limitations were very statistically significant ($p<0.001$). The oldest persons suffered from more ADL limitations. There were also no statistical significant differences concerning the three different cluster ADL limitations between the old persons born in urban areas and rural areas. Though the differences of personal care and gross mobility limitations among the educational level groups were very statistically significant ($p<0.001$), the difference of range of motion limitation was not statistically significant. More persons

with lower educational level suffered from personal care and gross mobility limitations. Single persons suffered from more ADL limitations. Between the persons living alone or only with a spouse and those living with children or others, there were no statistical significant differences of the three different cluster ADL limitations.

Table 11 The ADL limitations of the old persons

	Number (n)	Personal care Limitations(%)	Gross mobility limitations(%)	Range of motion limitations(%)
Total	**288**	**27 (9.4)**	**99 (34.4)**	**134 (46.5)**
Sex				
Men	149	15 (10.1)	37 (24.8)	52 (34.9)
Women	139	12 (8.6)	62 (44.6)	82 (59.0)
Age				
60----	193	11 (5.7)	49 (25.4)	71 (36.8)
70----	84	12 (14.3)	40 (47.6)	54 (64.3)
80--90	11	4 (36.4)	10 (90.9)	9 (81.8)
Educational level				
Primary school or below	106	18 (17.1)	50 (47.2)	59 (55.7)
Secondary or high school	91	3 (3.3)	24 (26.4)	36 (39.6)
Bachelor or above	91	6 (6.6)	25 (27.5)	39 (42.9)
Marital status				
Married	252	20 (7.9)	80 (31.7)	108 (42.9)
Single	36	7 (19.4)	19 (52.8)	26 (72.2)
Living arrangements				
Living alone or only with a spouse	101	10 (9.9)	35 (34.7)	49 (48.5)
Living with children or others	187	17 (9.1)	64 (34.2)	85 (45.5)

It is well known that there are associations between chronic diseases and the ADL limitations. In the study, the relationship between the chronic diseases and the ADL limitations are shown in table 12. There are relationships between the three different cluster ADL limitations and hypertension. There are also very significant relationships between the three different cluster ADL limitations and cerebrovascular diseases ($p<0.001$). For cataract, the differences of the three different cluster ADL limitations except for gross mobility limitations were statistically significant. For osteoporosis, only the difference of range of motion limitations was statistically significant. For other chronic diseases, the differences of the three different cluster ADL limitations were not statistically significant.

Table 12 The relationship between the chronic diseases and the ADL limitations

Chronic diseases	Number (n)	Personal care Limitations(%)	Gross mobility limitations(%)	Range of motion limitations(%)
Cornary heart diseases				
Yes	65	9 (13.8)	29 (44.6)	34 (52.3)
No	222	18 (8.1)	70 (31.5)	100 (45.0)
Hypertension				
Yes	109	19 (17.4)	52 (47.7)	59 (54.1)
No	178	8 (4.5)	47 (26.4)	75 (42.1)
Cerebrovascular diseases				
Yes	49	16 (32.7)	27 (55.1)	36 (73.5)
No	238	11 (4.6)	72 (30.3)	98 (41.2)
Cancers				
Yes	9	2 (22.2)	5 (55.6)	7 (77.8)
No	278	25 (9.0)	94 (33.8)	127 (45.7)
Diabetes				
Yes	33	5 (15.2)	14 (42.4)	18 (54.5)
No	254	22 (8.7)	85 (33.5)	116 (45.7)
Cataract				
Yes	45	8 (17.8)	20 (44.4)	28 (62.2)
No	242	19 (7.9)	79 (32.6)	106 (43.8)
Respiratory infections				
Yes	14	1 (7.1)	7 (50.0)	10 (71.4)
No	273	26 (9.5)	92 (33.7)	124 (45.4)
Osteoporosis				
Yes	69	10 (14.5)	30 (43.5)	43 (62.3)
No	218	17 (7.8)	69 (31.7)	91 (41.7)
Senile deafness				
Yes	18	4 (22.2)	10 (55.6)	10 (55.6)
No	269	23 (8.6)	89 (33.1)	124 (46.1)

Logistic regressions were carried out with personal care limitations, gross mobility limitations and range of motion limitations as dependent variables, and sex, birth place, educational level, age, marital status, living arrangements and kinds of chronic diseases as independent variables. For sex, the reference is female. From table 13, we can see that for personal care limitations, only hypertension and cerebrovascular diseases were significant. The persons suffering from hypertension or cerebrovascular disease had more personal care limitations. For gross mobility limitations, besides hypertension and cerebrovascular diseases, sex and age were also significant. Men had fewer gross mobility limitations. Persons suffering from hypertension or cerebrovascular diseases had more gross mobility limitations. More of the oldest elderly had more gross mobility limitations. For range of motion limitations, the result

of logistic regression is almost the same as that for gross mobility limitations. The only difference is osteoporosis instead of hypertension.

Table 13 The results of the logistic regression: variables in the equations

Variables	β	Sig.	Exp(β)	95%CI of exp(β)	
				Lower	Upper
Personal care limitations					
Hypertension	1.3793	0.0031	3.97	1.59	9.91
Cerebrovascular diseases	2.2006	0.0000	9.03	3.76	21.69
Constant	-3.7133	0.0000			
Gross mobility limitations					
Sex	-1.2757	0.0000	0.28	0.16	0.50
Hypertension	0.9396	0.0011	2.56	1.46	4.49
Cerebrovascular diseases	0.9557	0.0080	2.60	1.28	5.27
Age		0.0000			
60----					
70----	1.1777	0.0001	3.25	1.78	5.93
80--90	3.7261	0.0007	41.52	4.86	354.93
Constant	-1.1273	0.0000			
Range of motion limitations					
Sex	-1.2842	0.0000	0.28	0.16	0.48
Cerebrovascular diseases	1.3775	0.0003	3.97	1.87	8.42
Osteoporosis	0.7559	0.0187	2.13	1.13	4.00
Age		0.0000			
60----					
70----	1.3868	0.0000	4.00	2.19	7.32
80--90	2.3317	0.0052	10.30	2.00	52.90
Constant	-0.3983	0.0726			

4. SF-36 score

According to the standard rules of scoring the SF-36, we calculated the raw scale score and transformed scale respectively.

The transformed scale of physical functioning showed an obvious skewed distribution. Only less than 10% of the persons had physical functioning scales that were not more than 50. The differences of the physical functioning scale between sex, age, educational level and marital status were statistically significant. Men, persons with high educational levels, the youngest of the elderly and married persons had higher physical functioning scales. Coronary heart diseases, hypertension,

cerebrovascular diseases, diabetes, psychoses, cataract and osteoporosis were associated with the physical functioning scale. The persons with those diseases had lower physical functioning scale. The differences of the physical functioning scale between those with and without the limitations on personal care, gross mobility and range of motion were all very statistically significant ($p<0.01$). The persons without the limitations had higher physical functioning scale.

The distribution of the transformed role-physical functioning scale was skewed. Nearly 30% had no more than 50 on the role-physical functioning scale. The differences between sex, age, birth place, educational level, marital status and living arrangements were all not statistically significant. Coronary heart diseases, hypertension, cerebrovascular diseases, cancers, psychoses, cataract and osteoporosis affected the role-physical functioning scale. The persons with those diseases had lower role-physical functioning scale. The differences of the role-physical functioning scale between those with and without the limitations on personal care, gross mobility and range of motion were all very statistically significant. The persons with the limitations had lower role-physical functioning scale.

The distribution of the bodily pain scale was skewed and more dispersible. Nearly 15% had no more than 50 on the bodily pain scale. The differences between sex and marital status were statistically significant. The old men and the married persons had higher bodily pain scale. Coronary heart diseases, hypertension and osteoporosis affected statistically the bodily pain scale. The persons suffering from one of the three chronic diseases had lower bodily pain scale. The limitations on personal care, gross mobility and range of motion lowered the bodily pain scale significantly ($p<0.01$).

The distribution of the transformed general health scale was not very skewed. Nearly 40% had no more than 50 on the general health scale. Only the difference of the general health scale between the sexes was statistically significant. Coronary heart diseases, hypertension, cerebrovascular diseases, diabetes, psychoses, cataract and osteoporosis lowered the general health scale significantly statistically. The limitations on personal care, gross mobility and range of motion also lowered the general health scale very significantly.

The vitality scale had a skewed distribution. The differences of the vitality scale among age and educational level groups, and between the different marital status were statistically significant. More of the youngest elderly, the persons with higher educational level and the married persons had higher vitality scale. Coronary heart diseases, psychoses, cataract and osteoporosis lowered the vitality scale significantly statistically. The limitations on personal care, gross mobility and range of motion lowered the vitality scale very significantly statistically.

The social functioning scale has a skewed distribution too. Nearly 15% had no more than 50 on the social functioning scale. The differences of the social functioning scale between the demographic characteristics were all not statistically significant. Coronary heart diseases, cerebrovascular diseases, psychoses, cataract and respiratory infections lowered the social functioning scale significantly statistically. The limitations on personal care, gross mobility and range of motion also lowered the social functioning scale very significantly.

The role-emotional functioning scale also has a skewed distribution. The differences of the role-emotional functioning scale between the demographic characteristics were all not statistically significant. Coronary heart diseases, hypertension, cerebrovascular diseases, cancers, psychoses, cataract, respiratory infections and osteoporosis lowered the role-emotional functioning scale significantly statistically. The limitations on personal care, gross mobility and range of motion also lowered the role-emotional functioning scale very significantly.

The mental health scale also distributed still has a skewed distribution. Only about 10% had no more than 60 on the mental health scale. The differences of the mental health scale between the demographic characteristics were all not statistically significant. Only psychoses lowered the mental health scale significantly statistically. Only the limitations on range of motion lowered the mental health scale very significantly.

Table 14 The SF-36 score

	Number (n)	Physical functioning		Role-physical		Bodily pain		General health		Vitality		Social functioning		Role-emotional		Mental health	
		Median	Inter-quartile	Median	Inter-quartile	Median	Inter-quartile	Median	Inter-quartile	Median	Inter-quartile	Median	Inter-quartile	Median	Inter-quartile	Median	Inter-quartile
Total	282	90	20	100	56	74	39	57	27	75	25	100	25	100	67	84	20
Sex																	
Men	145	90	18	100	50	84	38	62	27	80	20	100	25	100	33	88	20
Women	137	80	25	100	75	72	49	55	36	75	28	100	25	100	67	84	19
Age																	
60----	191	90	15	100	25	84	38	57	27	80	25	100	13	100	33	84	16
70----	81	80	25	100	75	72	49	62	34	75	25	100	25	100	100	88	20
80--90	10	60	30	100	100	79	42	55	32	60	18	88	53	100	100	92	13
Birth place																	
Urban	117	90	18	100	63	74	39	57	27	80	28	100	25	100	67	84	16
Rural	164	85	20	100	69	74	39	59	27	75	25	100	13	100	67	88	20
Educational level																	
Primary school or below	101	85	25	100	75	72	48	60	38	70	23	100	13	100	67	88	20
Secondary or high school	90	90	20	100	75	84	48	55	27	78	20	100	25	100	67	84	20
Bachelor or above	91	90	20	100	25	74	38	60	25	80	25	100	25	100	0	84	20
Marital status																	
Married	246	90	15	100	50	84	38	57	27	75	20	100	25	100	50	84	16
Single	36	75	25	100	75	62	38	58	22	65	25	100	44	100	92	92	16
Living arrangements																	
Living alone or only with a spouse	101	90	15	100	50	74	38	55	26	75	23	100	25	100	67	84	20
Living with children or others	181	90	25	100	75	74	48	60	30	75	30	100	13	100	67	88	20

Table 15 The relationship between the SF-36 score and the limitations and chronic diseases

	Number	Physical functioning		Role-physical		Bodily pain		General health		Vitality		Social functioning		Role-emotional		Mental health	
		Median	Inter-quartile	Median	Inter-quartile	Median	Inter-quartile	Median	Inter-quartile	Median	Inter-quartile	Median	Inter-quartile	Median	Inter-quartile	Median	Inter-quartile
Limitations on personal care																	
No	257	90	15	100	25	74	38	60	28	80	23	100	13	100	33	84	20
Yes	25	40	63	0	63	54	43	35	33	60	38	50	75	0	67	88	34
Limitations on gross mobility																	
No	187	95	15	100	0	84	38	65	30	80	25	100	13	100	0	88	20
Yes	95	73	30	75	100	63	51	50	32	65	25	94	38	.67	100	84	20
Limitations on range of motion																	
No	153	95	10	100	0	100	37	65	30	80	20	100	6	100	0	88	16
Yes	129	75	25	75	94	84	49	50	30	65	15	94	38	83	100	84	24
Coronary heart diseases																	
No	217	90	24	100	25	84	38	64	27	80	25	100	13	100	33	88	20
Yes	65	80	20	100	88	62	49	45	30	70	28	88	31	100	100	84	24
Hypertension																	
No	175	90	20	100	25	84	38	65	27	80	25	100	13	100	33	84	20
Yes	107	80	21	100	75	72	49	50	30	70	25	100	25	100	100	88	20
Cerebrovascular diseases																	
No	234	90	15	100	25	74	38	60	28	75	20	100	13	100	33	88	18
Yes	48	75	50	75	100	72	49	40	34	68	34	81	50	67	100	84	27
Diabetes																	
No	249	90	20	100	75	74	39	60	27	75	25	100	25	100	67	88	20
Yes	33	83	25	100	25	72	47	49	45	75	40	100	25	100	25	84	31
Cataract																	
No	238	90	18	100	38	74	39	60	27	80	21	100	13	100	33	88	20
Yes	44	80	25	88	94	72	49	46	34	65	39	94	47	100	100	84	19
Osteoporosis																	
No	213	90	19	100	25	84	38	62	30	80	25	100	13	100	33	88	20
Yes	69	80	25	100	100	62	32	50	30	70	28	100	25	100	100	84	20
Senile deafness																	
No	266	90	20	100	50	74	39	60	27	75	25	100	25	100	67	84	20
Yes	16	80	39	75	84	74	39	56	23	80	10	100	34	83	92	86	11

From table 16, we can see that there were positive correlation between educational level and physical functioning, role-physical, vitality and role emotional scale, in other words, with the increased educational level, the physical functioning, role-physical, vitality and role emotional scale would increase. There were negative correlations between their ages and physical functioning, role-physical, bodily pain, vitality, social functioning and role-emotional scale, in other words, with the increase of their ages, their physical functioning, role-physical, bodily pain, vitality, social functioning and role-emotional scale would decrease.

Table 16 The correlation between educational level and age, and the SF-36 score

	Physical functioning	Role-physical	Bodily pain	General health	Vitality	Social functioning	Role-emotional	Mental health
Education	0.189	0.172	0.113	0.048	0.181	0.014	0.180	-0.039
(p)	0.001	0.040	0.059	0.419	0.002	0.821	0.002	0.511
Age	-0.327	-0.152	-0.126	-0.023	-0.134	-0.124	-0.171	0.114
(p)	0.000	0.010	0.035	0.705	0.025	0.038	0.004	0.056

Table 17 The self-reported health transition

	Number (n)	The health transition				
		Much better now than one year ago	Somewhat better now than one year ago	About the same as one year ago	Somewhat worse now than one year ago	Much worse now than one year ago
Total	**282**	**12 (4.3)**	**18 (6.4)**	**122 (43.3)**	**97 (34.4)**	**33 (11.7)**
Sex						
Men	147	3 (2.0)	8 (5.4)	68 (46.3)	54 (36.7)	12 (8.2)
Women	138	9 (6.5)	10 (7.2)	54 (39.1)	43 (31.2)	21 (15.2)
Age						
60----	191	7 (3.7)	13 (6.8)	88 (46.1)	68 (35.6)	15 (7.9)
70----	81	5 (6.2)	5 (6.2)	29 (35.8)	28 (34.6)	14 (17.3)
80--90	10	0 (0.0)	0 (0.0)	5 (50.0)	1 (10.0)	4 (40.0)
Birth place						
Urban	117	2 (1.7)	6 (5.1)	49 (41.9)	46 (39.3)	14 (12.0)
Rural	167	10 (6.0)	12 (7.2)	73 (43.7)	50 (29.9)	19 (11.4)
Educational level						
Primary school or below	101	5 (5.0)	6 (5.9)	39 (38.6)	31 (30.7)	20 (19.8)
Secondary or high school	90	3 (3.3)	9 (10.0)	36 (40.0)	33 (36.7)	9 (10.0)
Bachelor or above	91	4 (4.4)	3 (3.3)	47 (51.6)	33 (36.3)	4 (4.0)
Marital status						
Married	246	11 (4.5)	17 (6.9)	103 (41.9)	88 (35.8)	27 (11.0)
Single	36	1 (2.8)	1 (2.8)	19 (52.8)	9 (25.0)	6 (16.7)
Living arrangements						
Living alone or only with a spouse	101	3 (3.0)	8 (7.9)	41 (40.6)	37 (36.6)	12 (11.9)
Living with children or others	181	9 (5.0)	10 (5.5)	81 (44.8)	60 (33.1)	21 (11.6)

Table 17 showed the self-reported health transition. It can be seen that there were about 10% whose health was better than one year ago and about 45% whose health was worse than one year ago. For the characteristics we studied, the differences of their health transition were not statistically significant.

5. The evaluation of their lives

Among the old persons, there were more than 70% satisfied with their lives, no old persons were strongly dissatisfied with their lives, and only 2.5% were not satisfied with their lives. Their evaluation of their lives is shown in table 18. For the characteristics we paid attention to, the differences of their evaluation of their lives were not statistically significant.

Table 18 The evaluation of their lives

	Number	The evaluation			
		Strongly satisfied	satisfied	So-so	Dis-satisfied
Total	**285**	**34 (11.9)**	**175 (61.4)**	**69 (24.2)**	**7 (2.5)**
Sex					
Men	147	13 (8.8)	93 (63.3)	37 (25.2)	4 (2.7)
Women	138	21 (15.2)	82 (59.4)	32 (23.2)	3 (2.1)
Age					
60----	192	24 (12.5)	116 (60.4)	45 (23.4)	7 (3.6)
70----	83	9 (10.8)	55 (66.3)	19 (22.9)	0 (0.0)
80--90	10	1 (10.0)	4 (40.0)	5 (50.0)	0 (0.0)
Birth place					
Urban	117	12 (10.3)	75 (64.1)	27 (23.1)	3 (2.6)
Rural	167	22 (13.2)	100 (59.9)	41 (24.6)	4 (2.4)
Educational level					
Primary school or below	103	17 (16.5)	61 (59.2)	21 (20.4)	4 (3.9)
Secondary or high school	91	8 (8.8)	58 (63.7)	24 (26.4)	1 (1.1)
Bachelor or above	91	9 (9.9)	56 (61.5)	24 (26.4)	2 (2.2)
Marital status					
Married	249	26 (10.4)	156 (62.7)	61 (24.5)	6 (2.4)
Single	36	8 (22.2)	19 (52.8)	8 (22.2)	1 (2.8)
Living arrangements					
Living alone or only with a spouse	101	12 (11.9)	64 (63.4)	25 (24.8)	0 (0.0)
Living with children or others	184	22 (12.0)	111 (60.3)	44 (23.9)	7 (3.8)

6. Multivariable analyses

Considering living arrangements as dependent variable (if he/she lived alone or only with his/her spouse), and sex, age, birth place, educational level, marital status, number of their sons, kinds of chronic diseases, ADL limitations and SF-36 score as independent variables, we did logistic regression. For sex, the reference is female. For birth place, rural area is the reference. Primary school or below is the reference of the variable educational level. And for marital status, the reference is married. The result is listed in table 19. We can see that more persons born in rural areas lived alone or only with a spouse. Fewer single persons, fewer persons suffering from senile deafness, fewer persons who have more sons or unmarried children lived alone or only with a spouse.

Table 19 The living arrangements: the result of the logistic regression: variables in the equation

Variables	β	Sig.	Exp(β)	95%CI of exp(β)	
				Lower	Upper
Birth place	0.7667	0.0068	2.15	1.24	3.75
Marital status	-2.2432	0.0004	0.11	0.03	0.37
Senile deafness	-1.7327	0.0301	0.18	0.04	0.85
The number of sons	-0.4381	0.0065	0.65	0.48	0.89
Unmarried children?	-1.7043	0.0000	0.18	0.09	0.39
Constant	0.2272	0.4387			

Considering the preferred living arrangements as the independent variable (if he/she expected to live alone or only with his/her spouse), we used the same method to do logistic regression. The result was listed in table 20. We can see that only age and educational level were significant. Fewer persons aged 80 years and older preferred to live alone or only with a spouse. More persons with a bachelor degree or above preferred to live alone or only with a spouse.

Table 20 The preferred living arrangements: the result of the logistic regression: variables in the equation

Variables	β	Sig.	Exp(β)	95%CI of exp(β)	
				Lower	Upper
Age		0.0312			
60----					
70----	-0.4387	0.1146	0.64	0.37	1.11
80--90	-1.8801	0.0226	0.15	0.03	0.77
Educational level		0.0131			
Primary school or below					
Secondary or high school	0.5858	0.0562	1.80	0.98	3.28
Bachelor or above	0.8838	0.0042	2.42	1.32	4.43
Constant	0.0841	0.7203			

V. Discussion

1. Methodological considerations

Until present, in China, all information available on living arrangements base on census data and there has been no specific research focusing on their living arrangements. This is the first research focusing on this topic in China. Though there are a few reports on chronic diseases and health status of the elderly in China, they all deal with these issues separately. In this study, these issues were considered jointly for the first time. It is very useful to understand more completely the different aspects of population ageing.

Because we had limited funds, time and other resources to carry out this study and it was an explorative research, non-probability sampling method – deliberate sampling was used. The greatest disadvantage of non-probability sampling method is that the sample is not representative of the population. The findings are limited to the community or such communities having the same characteristics as this community. According to the census conducted in 1999, the proportion of the persons aged 60 years and older in the total population was about 13.6% in Beijing. As we know, there are quite a few units in Beijing, for example, kinds of universities, in which there are more young people, thus the proportion of persons aged 60 years and older among the total population in many communities would be higher than 13.6%. In the community we conducted this study, the proportion of the persons aged 60 years and older was about 18.0%. In addition, the response rate was quite high (90.0%) and the old persons had had all kinds of occupations. Therefore we think the community in which we conducted this study is quite representative of the population living in communities in Beijing urban areas. Thus we consider this community as a prototype of many communities in Beijing.

Living arrangements are the same if the man and woman are living together. So if the sample includes some couples, the characteristics pertaining to husband and wife are not independent. In this study, we interviewed almost all of the old persons in the community, so of course our sample included some couples and it was not independent. But we could think the old men and the old women sample respectively and then consider the whole sample consisting of the old men sample and the old

women sample. The results of the old men sample and the old women sample on living arrangements had no problems because the two samples were independent respectively definitely. The results of the whole sample could be considered as the compounded result of the old men sample and the old women sample. Therefore, we think the results on living arrangements in this article are creditable. But it is the best to consider family as study unit to study living arrangements.

2. The population and the old persons aged 60 years and older

Though the proportion of the persons aged 60 years and older in the community was more than 10%, the sex ratio was more than 100, nearly 70% were 60—70 years old and only less 4% were more than 80 years old, the population ageing in Beijing urban areas is thus at its early stage. We should seize the present opportunity to develop policies to meet the bigger challenges caused by the more serious population ageing. Now the social security system is not perfect, and we should improve the social security system, which is very important to keep the society stabile and to sustain development. We should readjust the institutions and resources to provide services for the elderly. On the other hand, we would encourage young people to prepare for their later life materially and mentally, and develop their resource as elderly to serve the society and themselves.

Among the old persons living in this community, a majority comes from rural areas, but most of them have stayed in Beijing urban areas for more than 30 years. Though there were nearly 20% who had no education, there were more than 30% having a bachelor degree or higher. The women had lower educational level than the men. The persons born in rural areas had lower educational level than those born in urban areas and a higher percentage of the oldest had lower educational level. All these showed that in the early years of the foundation of the People's Republic of China, the education had been developed greatly. However there were still differences between men and women. The mental sphere is an important aspect of the whole life and is important for one's health. We should pay more attention to meet old persons' psychological needs (for example, communication with the society) as well as to cater for their material needs. Because there were quite a few old persons with no education

as well as many old persons with higher education, we should provide mental supports for the elderly, making the varied educational level factor into account.

There were very few old persons who were not married, and the marital relationship of the old persons in China was very stable. But because of ageing, more than 10% had lost their spouses. The remarrying rate was very low. It may be because of the ancient Chinese tradition. More women than men became widowed earlier in life. More men with lower educational level were widowed. This may be due to the fact that old men with lower educational level coming from poor family background, women are the first suffer from disease and death. With the development of the society, more and more couples have fewer children and pay more attention to their children. In order to secure the society's stability and the old person health, we should care for old persons' marriage and encourage more widowed elderly to remarry, when possible, so that they can enjoy a better life.

Very few of the old persons had no children. Most of them had 2 or 3 children and only a few of them had more than 4 children. Single variable analyses found that there were some associations between the number of children and age, birth place, educational level and marital status. The oldest age group, those born in rural areas and those with lower educational level might be more impacted by the ancient Chinese tradition. Widowed persons might be older and therefore having more children. Or more children might lead to bad conditions and higher chances of losing a spouse and not remarrying. The preference to sons is the ancient Chinese tradition. So only less than 20% had no sons and the persons born in rural areas or with lower educational level had more sons. We can conclude that now the aged persons have many children in order to provide support in old age. But we must understand in the future there will be fewer children (one or two) in each family.

Almost all the persons aged 60 years and older had retired and the proportion working for pay was low. Men are considered the breadwinner in a family so that many of the retired men still had paid work. The retired persons with high educational level had a better chance to find a job easily. Married retired persons still had responsibilities so more of them wanted to continue to work. The majority of the old persons had pensions. In China, in the past only those who had worked in a state unit could get

pensions. More men, more persons born in urban areas, more persons with high educational level and more of the youngest elderly had a job in a state unit so that they had pensions. Recently reforms have resulted in more old persons getting pensions. However few elderly get money from insurance, which shows that the idea of insurance is not popular among the elderly. About a quarter of the elderly got support from their children. Women, the persons with lower educational level and single persons had fewer abilities to earn money, and fewer opportunities to support themselves, so that more of these needed support from their children. Now in Beijing, the cost of living is not high and 1000 RMB per month is enough for an old person for basic living. Only about 5% had 500 RMB or less available every month and thus had a difficult life, and about 15% who had more than 2000 RMB per month had a good life.

3. Living arrangements

There were several living arrangements for the old persons. Living with a spouse and children was the most common living arrangement. But there were about 1/3 living only with a spouse. The proportion of elderly living alone or only with a spouse reached 35.0%, which was higher than that reported by other researchers in China.[12, 23] Though it was not so high as that in the United States of America and European countries,[10] it has increased. I believe it is mainly because there have been great changes in the past two decades. Especially the fact that more and more people live in separate houses, which makes it possible to live alone or only with a spouse. The persons born in urban areas or with higher educational level were less affected by the ancient Chinese tradition and more impacted by the modern ideas, and they might have better living conditions so that more of them can live alone or only with a spouse. Single old persons were considered to need help, so few of single persons lived alone.

In the ancient Chinese tradition, one has children in order to have someone to support in old age. Thus, there is a tendency for old people to live with their children. In this study, we still can find that fewer persons with many children lived alone or only with a spouse. Especially if they had sons, the more sons, the less likely to live alone or only with a spouse. Besides the ancient Chinese tradition, the living conditions might

be another cause of that. The old persons who have more children or sons may have worse living conditions and no space to live alone or only with a spouse. Unmarried children are considered not to be mature and need parents to support them. So fewer old persons who had unmarried children lived alone or only with a spouse. Therefore, more persons lived with their married sons or/and their unmarried children. Daughters are thought more cordial and faithful to their parents than daughters-in-law, and even more able to care for their parents than sons. Persons aged 80 years and above might really need help. So more of the oldest persons lived with their married daughters. The results of the multivariate analyses showed only birth place, marital status, senile deafness, number of sons and if they had any unmarried children were the factors affecting their living arrangements. More persons born in rural areas lived alone or only with a spouse. Fewer single old persons, fewer old persons suffering from senile deafness, and fewer persons who had more sons or unmarried children lived alone or only with a spouse. The old persons suffering from senile deafness might have a lot of difficulties in daily life because of the lose of hearing and ask someone else to company and help them to escape any harm.

The old persons living alone or only with a spouse thought “more peace and quiet”, “no interference” and “more freedom” were the first three advantages of their living arrangement. Those advantages seemed suitable to old persons’ life and had positive effect on their health. But “can’t get the care regularly” was the first disadvantage of this kind of living arrangement. Maybe this disadvantage just was the cause explaining why more old persons were not living alone or only with a spouse. If our society could provide relevant services and our young people could care for old persons regularly, those old persons living alone or only with a spouse would be happier and more satisfied, and more persons could or would live alone or only with a spouse. For the old persons living with children or others, “more care”, “more kindness in the relationship with children” and “more fun” were the first three advantages of their living arrangements, and “too noisy” and “interfere with each other” were the disadvantages of their living arrangements. It should be paid more attention to the fact that quite a few old persons mentioned that “loneliness” was one of the disadvantages of their living arrangements even they did not live alone. They seemed to need our society and us to provide more psychological supports (contact and communication with others) to meet their non-material needs.

It is very interesting that if the conditions were suitable, more than 50% would have liked to live alone or only with a spouse. The rate would be almost the same as that in European countries.[10] This mean that the present conditions are not suitable to live alone or only with a spouse. The reason may be that there are not enough houses to live alone or only with the spouse, or the social service is not so good. So we should perfect our social security system, at the same time we should improve the economic conditions to further raise the living conditions of the elderly and the social service. Fewer persons preferred to live with their children, which mean that their tradition, perceptions and viewpoints had been somewhat changed. The idea of family planning has been generally accepted. Since the old persons has somewhat accepted the idea of family planning, more young people are expected to accept this idea, and family planning would become a conscious action of young people. Since the size and structure of the population is the results of long time actions, we should adjust the population policy, especially the way to carry out the population target at the right moment. The persons with high educational level or the youngest of the elderly seemed less to adhere to the ancient Chinese tradition and would be more impacted by modern ideas about living alone or only with a spouse. In contrast, the persons having more children or sons or married children were more affected by the ancient Chinese tradition, and had worse living conditions and had no space to live alone or only with a spouse, so that more of them just preferred to live with their children or others. The results of the multivariate analyses showed that only marital status and age were significantly related to preferred living arrangements. It is true that single old persons and the oldest persons need someone to accompany them and help. The main reasons for their preferred living arrangements “need for peace and quiet”, “need for freedom or no interference” and “need for care” just showed the characteristics and needs of the old persons.

4. Diseases

According to the reports of other researchers in China, the prevalence of chronic diseases among those aged 60 years and older was between 58% and 67%, and hypertension was found to be the most common chronic disease.[24, 25, 26, 27] In this study, the general prevalence of chronic diseases was 80.8%, which is almost the

same as that reported by Shi[17] and Bi Lulu[28]. Hypertension, osteoporosis and coronary heart diseases were the first three chronic diseases and the prevalence was 38.0%, 24.0% and 22.6% respectively. There was a difference between men and women. For the men, hypertension, cerebrovascular diseases and coronary heart diseases were the first three chronic diseases, and for the women they were hypertension, osteoporosis and coronary heart diseases. Much salt Chinese food may be one of the causes of hypertension. Hypertension could lead to more serious conditions, such as cerebrovascular diseases including apoplexy, and would thus harm the health of Chinese population. The prevention and control of hypertension should be a long-term and extremely important goal for us. Because many cancers are lethal, it is necessary with preventive measures. Some cancers, for example the cancers of the breast, could be found in early stage and be cured resulting in better survival rate and quality of life. In this study, there were more cancers among the old women. There were also more coronary heart diseases and osteoporosis among the old women. More than 50% of the old persons suffered from more than one chronic disease. It shows that chronic disease is an important hazardous factor to the health of old people.

The morbidity of acute diseases during the last month (Oct. 2001) at that time we conducted this study was 21.2%. This seemed somewhat high. It might be due to the change of season which implied that the weather and temperature change was too great to be adapted to and weak old persons became ill during that time. On the other hand, it could imply that the environment was not very healthy and there were much pathogenic germs. To improve the environmental hygiene is an important duty for us.

Nearly 50% had no ADL limitations. It showed that at that time most of the old persons had good health and could live by themselves in daily life. There were 9.4%, 34.4% and 46.5% with limitations in personal care, gross mobility and range of motion, respectively. There was a positive association between age and ADL limitations. The older, the more ADL limitations. The results showed that the ageing procedure affects first range of motion, then gross mobility and last personal care. For the extent of severity of limitations, women were more serious affected than men. Range of motion would be the real and first symbol of senility, and personal care and gross mobility could be improved by relevant training. The persons with higher

educational level knew to train themselves so that they did more personal care and had better gross mobility. The single persons were single because they might have more ADL limitations. The selection of living arrangements would wipe out the differences of the three different cluster ADL limitations between the living arrangements. There are a lot of factors related to hypertension, such as obesity, which could make old persons have more of the three different cluster ADL limitations. In addition, hypertension may be a cause of cerebrovascular diseases. The end results of cerebrovascular diseases may be losing any ability to pursue activities of daily life. The direct result of cataract is to lose sight, which could affect the personal care and range of motion, but would not harm gross mobility. Obviously osteoporosis only impact range of motion. All the 13 activities of daily life can be characterized as mild activities. Though the other chronic diseases could bring some difficulties to old persons, they would have no serious impact on the 13 activities of daily life. The results of multivariate analyses showed that cerebrovascular diseases were factors for all the three cluster ADL limitations, which tell us that cerebrovascular diseases are very serious chronic diseases. Sex and age were significant factors for gross mobility and range of motion limitations, but not for personal care limitations. Personal care was affected only by hypertension and cerebrovascular diseases – two kinds of serious chronic disease. It shows again that the prevention and control of hypertension and cerebrovascular diseases are very important.

5. SF-36

SF-36 is a very much used survey instrument and is recommended by WHO to use broadly. Some articles on discussing the use of SF-36 among Chinese were seen, but we could not find any reports using SF-36 in the People's Republic of China. In other countries, SF-36 is always used on special groups. Therefore few comparisons were done in this study.

Compared to the U.S. norms for SF-36 scales,[29] the distributions and other important characteristics of the results of this study were almost the same. In addition, the impact of ADL limitations on SF-36 scale also showed SF-36 had validity. So we thought this survey was successful and the results seems valid.

The median score on the transformed scale of physical functioning was 90.00 and only less than 10% of the old persons had physical functioning scores equal or less than 50. It shows that most of the old persons had good physical functioning and could perform types of physical activities including the most vigorous without limitations due to health. Sex, age, educational level, marital status and chronic diseases were the factors affecting physical functioning score. The median of the role-physical functioning score was high as 100, but nearly 30% scored 50 or less on role-physical functioning scale. It shows there might be two extremes. Most of the elderly had no problems with work or other daily activities as a result of physical health. On the other hand, quite a few old persons had problems with work or other daily activities as a result of physical health. Only chronic diseases affected the role-physical functioning score. Only about 15% had a score of 50 or less on the bodily pain scale. It shows there were few persons suffering from very severe and extremely limiting pain. Maybe women had more resilience towards pain and reported less bodily pain. Divorced and widowed persons might have had more non-bodily pain and therefore reported less bodily pain. The distribution of the transformed general health score was not very skewed. So it should be. Women may pay more attention to their health and often give worse evaluation of things. The divorced or widowed persons may lose their confidence because of their unhappy condition so that they have a lower vitality score. The median of the social functioning score was high, it was 100 and only about 15% had a score of 50 or less on the social functioning scale. The majority of the old persons were able to perform normal social activities without interference due to physical or emotional problems. It is very important for old persons to take part in normal social activities. Normal social activities could keep them healthy. The role-emotional functioning score of the old persons was very high. Majorities of them had no problems with work or other daily activities as a result of emotional problems. The mental health score was also quite high and only about 10% had a score of 60 or less on the mental health scale, which shows that most of them felt peaceful, happy and calm all of the time. Overall, the health of the old persons was quite good. The score on emotion, social activities and mental health was better than that on the physical aspects. This might be because China is a big country with big population and have ancient history and tradition of communication and respect of elderly. Compared to the results reported by Ware conducted in USA,[30] there were

more persons reporting that their health was worse than one year ago. It means that more persons were becoming less healthy. It might because the subjects were old persons. With the increase of their age, the health became worse and worse.

At first, we would think that there would be some differences in health according to the living arrangements. But in this study, we have not found any differences in health according to the living arrangements. Maybe the old persons living alone or only with a spouse were healthier so that they could live alone or only with spouse. They could not get enough and timely care, so that they became less healthy. On the other hand, the old persons not living alone or only with a spouse who were not so healthy, did not become worse or recovered more gradually because they got sufficient and timely care from their families. The differences became smaller even disappeared, because of the effects of care so that we could not find the differences. But living alone or only with a spouse is an increasing trend and the size of family is becoming smaller and smaller. We can not depend on the family support for the elderly in the future. Improving social support should be the substitute for the family support.

Chronic diseases affected almost each and every one of the eight health aspects. Coronary heart diseases affected all the seven health aspects except mental health. Hypertension affected the other five health aspects except vitality, social function and mental health. Cerebrovascular diseases lowered the physical functioning, role-physical functioning, general health, social functioning and role-emotional functioning scale. Cancers only influenced the role-physical and role-emotional functioning scale, which maybe because those cancers had been controlled or did not develop very fast. Diabetes only affected physical functioning and general health scale. Psychoses affected the seven health aspects except bodily pain. Cataract had impact on the six health aspects except bodily and mental health. Osteoporosis also had comprehensive impact on the six aspects except social functioning and mental health. Respiratory infections had impact on social functioning and role-emotional functioning because of its symptoms. We could not find that other chronic diseases had any impact on the eight health aspects. From the above, we could see coronary heart diseases and psychoses had the most impact, cataract and osteoporosis the second, hypertension and cerebrovascular diseases the third, and then cancers, diabetes and respiratory infections. Therefore, in order to improve the health of old

persons completely, we should first prevent and control coronary heart diseases and psychoses, second cataract and osteoporosis, third hypertension and cerebrovascular diseases, and then cancers, diabetes and respiratory infections.

6. The evaluation of their lives

More than 70% of the elderly were satisfied with their lives. No old persons were strongly dissatisfied with their lives and only 2.5% were not satisfied. It showed that the majority of the old persons were satisfied with and adapted to their current situation. They had a good psychological condition, as scaled by the results of SF-36. They had high score on mental health aspects of SF-36.

VI. Conclusion and Recommendations

1. The population ageing is a fact in Beijing urban areas and seem to be at its early stage. Most of the old persons were younger elderly, and only a few were real old persons. Among the subjects, there were quite a few having high educational level, at the same time there were quite a few having no education. There were very few who never married, few divorced persons and the remarry rate was very low. Most had 2 or 3 children. Almost all had retired and the proportion of the old persons still working was low. The majority of the old persons had pensions. About a quarter got support from their children. Only about 5% who had 500 RMB or less every month had some problems with the cost of living. About 15% who had more than 2000 RMB per month to be spent had a good life. We should seize the present opportunity to develop policies to meet the bigger challenges caused by the increasing population ageing in the coming future. We should increase the number of institutions and resources to provide suitable services for the elderly according to the different needs of the old persons.
2. Though living with a spouse and children was the most common living arrangement for the old persons, the rate of those living alone or only with a spouse reached 35.0%. More persons born in urban areas, more persons with higher educational level and more married persons were living alone or only with a spouse. The more sons they had, the lower the rate of living alone or only with a spouse. More persons who had not any unmarried children lived alone or only with a spouse. More persons lived with married sons or/and unmarried children. Multivariate analyses found that educational level was not the decisive factors of the living arrangement, but senile deafness was. The factors affected the living arrangement were birth place, marital status, senile deafness, number of sons and if they had any unmarried children. We should adjust the population policy, especially the way to carry out the population target at the right moment in order to create a good population condition for the future.
3. “More peace and quiet”, “no interference” and “more freedom” were the first three advantages of the living arrangement: living alone or only with a spouse, and its first disadvantage was “can’t get the care regularly”. In contrast, “more care”, “more kindness in the relationship with children” and “more fun” were the first

three advantages of the living arrangements—living with children or others, and its disadvantages were “too noisy” and “interference with each other”. Our society should provide more relevant services including those for psychological and social supports and encourage young people to care for old persons regularly, even if they do not live together. On the other hand, we should accelerate the economic development and provide more space for the families so that the old persons could have their own houses and enjoy their lives.

4. If the conditions allowed, there were 58.4% of the old people who preferred to live alone or only with a spouse, compared to 35.1% who actually lived alone or only with a spouse. The results of single variable analyses showed that more persons with high educational level, more of the youngest elderly and more married old persons preferred to live alone or only with a spouse. But the results of multivariate analysis showed that only marital status and age were the factors associated with their preferred living arrangements. For the persons who preferred to live alone or only with a spouse, the main reasons were “need for peace and quiet” and “need for freedom or no interference”. And for the old persons who preferred to live with children, the main reasons were “need for care” and “afraid of solitude”. In order to meet these kinds of needs, we should provide suitable houses and living conditions, which would imply improvement of the development of the real estate market. At the same time, we should improve the social services to provide proper services and care for the elderly to remove their problems.
5. The general prevalence of chronic disease was 80.8%. Hypertension, osteoporosis and coronary heart diseases were the first three common chronic diseases and prevalence were 38.0%, 24.0% and 22.6% respectively. There were more cancers, coronary heart diseases and osteoporosis among the women. More than 50% suffered from more than one chronic disease. Chronic disease was the most important health problem and the prevention and control of chronic diseases should be become one of the most important preventive tasks. Hypertension, cerebrovascular diseases, osteoporosis and coronary heart diseases should have the highest priority.
6. The morbidity of acute diseases during Oct. 2001 was 21.2% and the most common acute disease was cold. Improving environmental hygiene is an important task for us.

7. 48.3% can do all the ADL activities on their own easily. There were 9.4%, 34.4% and 46.5% with personal care, gross mobility and range of motion limitations respectively. More women suffered from gross mobility limitations and range of motion limitations. More of the oldest persons suffered from ADL limitations. More persons with lower educational level suffered from personal care and gross mobility limitations. Single persons had more ADL limitations. Hypertension and cerebrovascular diseases were associated with the three different cluster ADL limitations. Cataract affected personal care and range of motion, and osteoporosis influenced only range of motion. The results of multivariate analyses showed that hypertension and cerebrovascular diseases were the factors influencing personal care limitations. Sex, hypertension, cerebrovascular diseases, and age were the factors associated with gross mobility limitations, and sex, cerebrovascular diseases, osteoporosis and age were the factors associated with range of motion limitations. ADL limitations affect the quality of life directly. Many old persons suffered from ADL limitations. We should provide relevant services and help so that they can have normal life. On the other hand, we should make effort to prevent and control chronic diseases so as to reduce ADL limitations. Hypertension, cerebrovascular diseases, cataract and osteoporosis should have the priority.
8. The health of the old persons was quite good according to the SF-36 test. The score on emotion, social activities and mental was better than that on physical aspects. Sex and marital status almost always were the factors of health. Chronic diseases affected almost every one of the eight health aspects. But different chronic diseases had different impact on health. Coronary heart diseases, psychoses, cataract, osteoporosis, hypertension and cerebrovascular diseases were very important for the health of the old persons.

References

1. Population Division, Department of Economic and Social Affairs, United Nations. Population Ageing 1999.
   URL: http://www.undo.org/popin/wdtrends/a99/ageing.htm.
2. Fubin Sun. Ageing of the Population in China: Trends and Implications. Asia-Pacific Population Journal, 1998, 13(4):75-92.
3. Bary Mirkin and Mary Beth Weinberger. The Demography of Population Ageing. Technical Meeting on Population Ageing and Living Arrangements of Older persons: Critical Issues and Policy Responses. New York, February 2000.
4. WHO, Population Ageing – A Public Health Challenge. Fact Sheet No. 135, 1998. URL: http://www.who.int/inf-fs/en/fact135.htm.
5. WHO, Women, Ageing and Health. Fact Sheet No 252, June 2000. URL: http://www.who.int/inf-fs/en/fact252.htm.
6. Graeme Hugo. Over to the next century: Continuities and Discontinuities. ESCAP, Asian Population Studies Series No. 141. URL: file://MI/pc/personal/apss141chap8.htm.
7. Tan Poo Chang. Implication of Changing Family Structures on Old-age Support in the ESCAP Region. Asia-Pacific Population Journal, 1992, 7(2):49-66.
8. Mercedes B. Concepcion. The Greying of Asia: Demographic Dimensions. ESCAP, Asian Population Studies Series No. 141. URL: file://MI/pc/personal/apss141chap1.htm.
9. A. B. Bose. Caring for the Aged: Programmes and Services. ESCAP, Asian Population Studies Series No. 141. URL: file://MI/pc/personal/apss141chap4.htm.
10. Alberto Palloni. Living Arrangements of Older Persons. Technical Meeting on Population Ageing and Living Arrangements of Older persons: Critical Issues and Policy Responses. New York, February 2000.
11. Victoria Velkoff. Future Research Directions. Technical Meeting on Population Ageing and Living Arrangements of Older persons: Critical Issues and Policy Responses. New York, February 2000.
12. Zeng Yi and Linda George. Extremely Rapid Ageing and the Living Arrangements of Older Persons: The case of China. Technical Meeting on Population Ageing and Living Arrangements of Older persons: Critical Issues and Policy Responses. New York, February 2000.
13. Jay Sokolovsky. Living Arrangements of Older Persons and Family Support in Less Developed Countries. Technical Meeting on Population Ageing and Living Arrangements of Older persons: Critical Issues and Policy Responses. New York, February 2000.
14. Jenny Gierveld, Helga de Valk and Marieke Blommesteijia. Living Arrangements of Older Persons and Family Support in More Developed Countries. Technical Meeting on Population Ageing and Living Arrangements of Older persons: Critical Issues and Policy Responses. New York, February 2000.
15. Emily Grundy. Living Arrangements and the Health of Older Persons in Developed Countries. Technical Meeting on Population Ageing and Living Arrangements of Older persons: Critical Issues and Policy Responses. New York, February 2000.

16. Gao F, Yu P and Zheng N. An epidemiology study on common diseases among the elderly in Beijing. Zhong Hua Liu Xing Bing Xue Za Zhi, 1998 Jun; 19(3):159-61 (in Chinese).
17. Shi Z, Zhang S and Yang Y. Study on health status of 3333 old people in Chengdu City. Zhong Hua Liu Xing Bing Xue Za Zhi, 1998 Feb; 19(1): 15-7 (in Chinese).
18. Xu T and Qu Q. The survey of qyality of life among ageing population in the rural areas of Guangdong. Zhong Hua Liu Xing Bing Xue Za Zhi, 1998 Feb; 19(1): 9-11 (in Chinese).
19. Kua EH. Mental health of the elderly Chinese population in Singapore. Psychiatry Clin Neurosci. 1998 Dec; 52 supple: s297-9.
20. Mohammed O. Rahman. Living Arrangements and the Health of Older Persons in Less Developed Countries: Evidence from Rural Bangladesh. Technical Meeting on Population Ageing and Living Arrangements of Older persons: Critical Issues and Policy Responses. New York, February 2000.
21. Liu CJ, Li NX and et al. Adaptation research on SF-36 among Chinese population. J WCUMS, 2000; 32(1):39.
22. Ware JE, Snow KK, Kosinski M, et al. SF-36 Health Survey Manual and Interpretation Guide. Boston: The Health Institute, New England Medical Center, 1993:6:1-6:22.
23. Xiao Zhengyu and et al. Reseach on population ageing and the social security system. Beijing, September, 2001.
24. Huang Wenyong and et al. Study on the quality of life of the elderly in the urban area of Guiyang. Practical Preventive Medicine, Oct., 1999, 6(5):321-323.
25. Ning Haoding and et al. An epidemiological study on quality of life among the elderly population in Shenzhen. Chin J Prev Contr Non-commun Dis, 1999, 7(4):168-169.
26. Huang Maosheng and et al. Survey on the prevalence of common chronic diseases among the elderly in the rural and urban areas of Shanghai. Chin J Geriatr, Aug., 2001, 20(4):287-289.
27. Ni Ruxin and et al. Impact of the elderly chronic diseases on the ability of daily life. Chinese General Practice, January 2001, 4(1):42-44.
28. Bi Lulu and et al. Comprehensive health status of the elderly in Tianping community. Shanghai J Prev Med, Aug., 1999, 11(8):342-344.
29. Ware JE, Snow KK, Kosinski M, et al. SF-36 Health Survey Manual and Interpretation Guide. Boston: The Health Institute, New England Medical Center, 1993:10:1-10:38.
30. Ware JE, Snow KK, Kosinski M, et al. SF-36 Health Survey Manual and Interpretation Guide. Boston: The Health Institute, New England Medical Center, 1993:9:15-9:18.

Appendix

No. ☐☐☐

Questionnaire for

The life and health status of the urban elderly people in Beijing, China

Write down the sex of the respondent: 1 Male 2 Female

I Background

1. 1 What is your date of birth? Year _____ Month ___
----for whom born later than Oct. 1941, thank and end the interview.
1.2 Where is your birth place? Province_____(1. Urban; 2. Rural)
1.3 How long have you stayed in Beijing urban areas? _____Years
----for whom stayed in Beijing less than 3 years, thank and end the interview.

2.1 For how many years have you received formal education? _____Years
2.2 What is the highest degree you have got?
(1) below primary school; (2) primary school; (3) secondary school;
(4) high school; (5) bachelor or above.

3. What is your current marital status?
(1) Never married (2) Married
(3)Divorced (How many times have you changed your marital status? ____
When is the last time did you change your marital status? ___year___month)
(4) Widowed (When did you lost your spouse? ____year ____month
What did your spouse die from? _____)
(5) Remarried (How many times have you changed your marital status? ____
When is the last time did you change your marital status? ___year__month)

4 What is the kind of the work you have done for the longest time? _____

5.1 Have you ever smoked?
A No (Skip to question 5.8) B Yes.
5.2 How old did you start smoking? _____years old
5.3 Have you tried to stop smoking?
A No (Skip to question 5.5) B Yes.
5.4 Have you succeeded in stopping smoking?
A No (explore question 5.5) B Yes.(Explore question 5.6)
5.5 How many cigarettes do you smoke per day in average?
A <5 B 5--10 C 10--20 D 20--40 E >40
5.6 When did you smoke lastly? ____year___month
5.7 By now, how many years do you have smoked? ____years
5.8 Do the peoples who live with you smoke?

A No B Yes

6.1 Have you ever drunk?

A No (Skip to question 7.1) B Yes.

6.2 How old did you start drinking? _____years old

6.3 Have you tried to stop drinking?

A No (Skip to question 6.6) B Yes.

6.4 Have you succeeded in stopping drinking?

A No (Skip to question 6.6) B Yes.

6.5 When did you drink lastly? ____year ___month (Skip to question 6.9)

6.6 How often do you drink?

A everyday B every two days C one time one week
D one time per two weeks E one time one month F less

6.7 What kind of drink do you used to drink?

A. Beer; B. wine C. Distilled spirit with less alcohol
D Distilled spirit with more alcohol E all kinds of drink

6.8 How much do you used to drink one time?

A. Beer; B. wine
C. Distilled spirit with less alcohol D Distilled spirit with more alcohol

6.9 How many years have you been drinking? _____years

II Living arrangements and life status

7.1 How many living children do you have?

Son(s): _____married _____unmarried
Daughter(s): _____married _____unmarried.

7.2 Whom do you live with now?

(1) Only yourself (2) Only with spouse
(3) Only with children (4) With spouse and children
(5) With spouse and others (6) Only with others.

For (3) or (4), please specify children are

A Married son B Married daughter
C Unmarried son D Unmarried daughter.

For (5) or (6), please specify others are _____

7.3 What kind of advantages and disadvantages do you think there are for this kind of living arrangement?

Advantages: A More peace and quiet B More fun C More freedom
D more kindness in the relationship with the children
E No interference F More care G others_____

Disadvantages: A Can't get the care regularly B Too peace and quiet
C Too noisy D Easy to have contradictions E No freedom
F Loneliness F Interference with each other G others_____

7.4 If the conditions are suitable, in your opinion, what kind of living arrangement is your preference? And why?

(1) Only yourself (2) Only with spouse
(3) Only with children (4) With spouse and children
(5) With spouse and others (6) Only with others.

For (3) or (4), please specify children are

A Married son B Married daughter
C Unmarried son D Unmarried daughter.

For (5) or (6), please specify others are _____

Reasons _____

7.5 Which kind of building are you living in?

A a building with many floors B a building with a few floors

C bungalow

7.6 For the living arrangement now you have, are there any

(1) Toilet facility:	Yes	☐	No	☐
(2) Bathing facility:	Yes	☐	No	☐
(3) Cooking facility:	Yes	☐	No	☐
(4) Elevator access:	Yes	☐	No	☐
(5) Access to parks:	Yes	☐	No	☐

8.1 Can you cook for yourself?

A No B Yes (skip to Question8.3)

8.2 How do you manage your food?

A Cooked by others B Buy cooked food C others

8.3 How often can you eat fruits?

A Everyday B Every two days C Every week D Every month. E less more

8.4 How often can you eat eggs?

A Everyday B Every two days C Every week D Every month. E less more

8.5 How often can you eat meats?

A Everyday B Every two days C Every week D Every month. E less more

8.6 How often can you drink milk?

A Everyday B Every two days C Every week D Every month. E less more

9.1 Do you have retired?

A. No

B. Yes. When did you retire? ____year ____month

9.2 Do you think how old one should retired? And why? _____years old

Reasons_____

9.3 Are you working now? Why?

A No

B Yes

Reasons_____

9.4 What do you live on?

(1) Pension (2) Insurance (3) Saving

(4) Support from children (5) Work income (6) Others

9.5 In total, how much money do you have per month? _____yuan

10.1 What kind of activities do you insist on? _____

10.2 How often? a everyday b every two days c every week d every month

10.3 How many hours do you spend for such activity every time? _____hours

10.4 How often do you communicate with someone who does not live with you?

Children: a everyday b every two days c every week d every month

Relatives: a everyday b every two days c every week d every month

Friends: a everyday b every two days c every week d every month

Others: a everyday b every two days c every week d every month

(Others mean _____.)

10.5 How many hours do you spend to play / communicate with others everyday?

_____hours

III Health status

11.1 Do you have any chronic diseases?
No
Yes. Please specify

Kind of disease	When was the disease diagnosed?	Do you try to treat this kind of disease?	What kind of treatment do you received
Coronary heart disease			
Hypertension			
Cerebrovascular diseases			
Cancers			
Diabetes			
Psychoses (senile dementia, depression and so on)			
Cataract			
Respiratory infections (pneumonia and so on.)			
Osteoporosis			
Senile deaf			
Others (_____)			

11.2 In recently 4 weeks, have you suffered from any kind of acute diseases?
No; (Skip to question 11.6)
Yes. Please specify _____.
11.3 Do you go to seek health services?
No; (Skip to question 11.6)
Yes.
11.4 What kind of health services had you got? _____.
11.5 Do you satisfy with the health services?
Yes. Please specify _____.
No.
11.6 Have you used traditional Chinese medicine to treat diseases?
1 Yes. 2 No
11.7 Do you like to use traditional Chinese medicine to treat diseases? Why?
Yes. Reasons _____
No. Reasons _____
11.9 How do you understand the traditional Chinese Medicine?
_____
_____
_____

12.1 In your daily life, do you have any limitations?
No.
Yes. Please specify

	I can do on my own		I unable to do on my own
	easily	with difficulty	
Bathe			
Dress			
Get up and out of bed			
Use the toilet			
Walk one mile			
Use a ladder to climb to a storage place at least 5 feet in height			
Sweep the floor or courtyard			
Carry a 10kg weight for twenty yards			
Use a hand pump to draw water			
Stand up from a squatting position on the floor			
Set in a squatting position on the floor			
Get up from a sitting position on a chair or stool without help			
Crouch or stoop			

12.2 How about your teeth?
A Healthy B Lost some
C Lost all but having added man-made teeth D Lost all
12.3 How about your eyesight?
A Can see easily B Can see but with difficulty C Can not see anything.
12.4 How about your hearing?
A Can hear easily B Can hear but with difficulty C Can not hear without help

IV Health care

13.1 In your family, what kind of care do you get (the 5 most important)?
A cook B wash the cloth C Clean D buying E height work
F cultivate flowers and grass and aviculture G health care
H others _____

13.2 In your family, what kind of care do you give (the 5 most important)?
A cook B wash the cloth C Clean D buying E height work
F cultivate flowers and grass and aviculture G health care
H look after the children I others _____
13.3 For the care from your family, do you have any complaints?
No.
Yes. Please specify _____.
13.4 In your community, what kind of care do you get (the 5 most important)?
A provide food B clean services C health care
D body work E set up establishment for the aged
F develop community communication and culture amusement
G consultation services H others _____

13.5 In your community, what kind of care do you give (the 5 most important)?

A renovate the environment B organize and take part in culture activities

C organize and take part in culture activities D care for other aged

E others _____

13.6 For the care from your community, do you have any complaints?

No.

Yes. Please specify _____.

13.7 What kind of care do you get from the society (the 5 most important)?

A set up institutions and establishment for the aged

B develop the law and statute for

C develop and improve the social security /medical system

D provide the discount/ free services

E others _____

13.8 For the care from the society, do you have any complaints?

No.

Yes. Please specify _____.

14 How satisfied are you with your life?

A strongly satisfied B Satisfied C Unsatisfied

D strongly unsatisfied E I don't know.

SCRIPT FOR PERSONAL INTERVIEW SF-36 ADMINISTRATION

The script is recommended for interviewer administrations of the Sf-36 items. It can be administered both by telephone and in-person. Standard SF-36 instructions should precede this script. Interviewers also should follow standard procedures for repeating questions and response choices as required by the respondent.

These first questions are about your health now and your current daily activities. Please try to answer every question as accurately as you can.

Q1 In general would you say your health is …

1. excellent
2. very good
3. good
4. fair
5. poor

Q2 Compared to 1 year ago, how would you rate your health in general now? Would you say it is …

1. much better now than one year ago
2. somewhat better now than one year ago
3. about the same as one year ago
4. somewhat worse now than one year ago
5. much worse now than one year ago

Now I'm going to read a list of activities that you might do during a typical day. As I read each item, please tell me if your health now limits you a lot, limits you a little, or does not limit you at all in these activities.

Q3 First, vigorous activities, such as running, lifting heavy objects, participating in strenuous sports. Does your health now limit you a lot, limit you a little, or not limit you at all?

If R says s/he does not do activity, probe:

Is that because of your health?

1. Yes, limited a lot
2. Yes, limited a little
3. No, not limited at all

Q4 …moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf. Does your health now limit you a lot, limit you a little, or not limit you at all?

If R says s/he does not do activity, probe:

Is that because of your health?

1. Yes, limited a lot
2. Yes, limited a little
3. No, not limited at all

Q5 …lifting or carrying groceries. Does your health now limit you a lot, limit you a little, or not limit you at all?

If R says s/he does not do activity, probe:

Is that because of your health?

1. Yes, limited a lot
2. Yes, limited a little
3. No, not limited at all

Q6 …climbing several flights of stairs. Does your health now limit you a lot, limit you a little, or not limit you at all?

If R says s/he does not do activity, probe:

Is that because of your health?

1. Yes, limited a lot
2. Yes, limited a little
3. No, not limited at all

Q7 …climbing one flight of stairs. Does your health now limit you a lot, limit you a little, or not limit you at all?

If R says s/he does not do activity, probe:

Is that because of your health?

1. Yes, limited a lot
2. Yes, limited a little
3. No, not limited at all

Q8 …bending, kneeling, or stooping. Does your health now limit you a lot, limit you a little, or not limit you at all?

If R says s/he does not do activity, probe:

Is that because of your health?

1. Yes, limited a lot
2. Yes, limited a little
3. No, not limited at all

Q9 …walking more than a mile. Does your health now limit you a lot, limit you a little, or not limit you at all?

If R says s/he does not do activity, probe:

Is that because of your health?

1. Yes, limited a lot
2. Yes, limited a little
3. No, not limited at all

Q10 walking several blocks. Does your health now limit you a lot, limit you a little, or not limit you at all?

If R says s/he does not do activity, probe:

Is that because of your health?

1. Yes, limited a lot
2. Yes, limited a little
3. No, not limited at all

Q11 …walking one block. Does your health now limit you a lot, limit you a little, or not limit you at all?

If R says s/he does not do activity, probe:

Is that because of your health?

1. Yes, limited a lot
2. Yes, limited a little
3. No, not limited at all

Q12 …bathing or dressing yourself. Does your health now limit you a lot, limit you a little, or not limit you at all?

If R says s/he does not do activity, probe:

Is that because of your health?

1. Yes, limited a lot
2. Yes, limited a little
3. No, not limited at all

The following four questions ask you about your physical health and your daily activities.

Q13 During the past 4 weeks, have you had to cut down the amount of time you spent on work or other regular daily activities as a result of your physical health?

1. Yes
2. No

Q14 During the past 4 weeks, have you accomplished less than you would like as a result of your physical health?

1. Yes
2. No

Q15 During the past 4 weeks, were you limited in the kind of work or other regular daily activities you do as a result of your physical health?

1. Yes
2. No

Q16 During the past 4 weeks, have you had difficulty performing work or other regular daily activities as a result of your physical health, for example, it took extra effort?

1. Yes
2. No

The following three questions ask about your emotions and your daily activities:

Q17 During the past 4 weeks, have you cut down the amount of time you spent on work or regular daily activities as a result of any emotional problems, such as feeling depressed or anxious?

1. Yes
2. No

Q18 During the past 4 weeks, have you accomplished less than you would like as a result of any emotional problems, such as feeling depressed or anxious?

1. Yes
2. No

Q19 During the past 4 weeks, did you not do work or other regular daily activities as carefully as usual as a result of any emotional problems, such as feeling depressed or anxious?

1. Yes
2. No

Q20 During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your social activities like visiting with friends or relatives? Has it interfered…

1. not at all
2. slightly
3. moderately
4. quite a bit
5. or extremely

Q21 How much bodily pain have you had during the past 4 weeks? Have you had…

1. none
2. very mild
3. mild
4. moderate
5. severe
6. or very severe

Q22 During the past 4 weeks, how much did pain interfere with your normal work, including both work outside the home and housework? Did it interfere…

1. not at all
2. a little bit
3. moderately
4. quite a bit
5. or extremely

Q23 during the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities like visiting with friends or relatives? Has it interfered…

1. all of the time
2. most of the time
3. some of the time
4. a little of the time
5. or none of the time

The next questions are about how you feel and how things have been with you during the past 4 weeks.

As I read each statement, please give me the one answer that comes closest to the way you have been feeling; is it all of the time, most of the time, a good bit of the time, some of the time, a little of the time, or none of the time?

Q24 How much of the time during the past 4 weeks… did you feel full of pep? Read categories.

1. all of the time
2. most of the time
3. a good bit of the time
4. some of the time
5. a little of the time
6. none of the time

Q25 How much of the time during the past 4 weeks… have you have been a very nervous persons? Read categories.

1. all of the time
2. most of the time
3. a good bit of the time
4. some of the time
5. a little of the time
6. none of the time

Q26 How much of the time during the past 4 weeks… have you felt so down in the dumps that nothing could cheer you up? Read categories only if necessary.

1. all of the time
2. most of the time
3. a good bit of the time
4. some of the time
5. a little of the time
6. none of the time

Q27 How much of the time during the past 4 weeks… have you felt calm and peaceful? Read categories only if necessary.

1. all of the time
2. most of the time
3. a good bit of the time
4. some of the time
5. a little of the time
6. none of the time

Q28 How much of the time during the past 4 weeks… did you have a lot of energy? Read categories only if necessary.

1. all of the time
2. most of the time
3. a good bit of the time
4. some of the time
5. a little of the time
6. none of the time

Q29 How much of the time during the past 4 weeks… have you felt downhearted and blue? Read categories only if necessary.

1. all of the time
2. most of the time
3. a good bit of the time
4. some of the time
5. a little of the time
6. none of the time

Q30 How much of the time during the past 4 weeks… did you feel worn out? Read categories only if necessary.

1. all of the time
2. most of the time
3. a good bit of the time
4. some of the time
5. a little of the time
6. none of the time

Q31 How much of the time during the past 4 weeks… have you been a happy person? Read categories only if necessary.

1. all of the time
2. most of the time
3. a good bit of the time
4. some of the time
5. a little of the time
6. none of the time

Q32 How much of the time during the past 4 weeks… did you feel tired? Read categories only if necessary.

1. all of the time
2. most of the time
3. a good bit of the time
4. some of the time
5. a little of the time
6. none of the time

These next questions are about your health and health-related matters.

Now I'm going to read a list of statements. After each one, please tell me if it is definitely true, mostly true, mostly false, or definitely false. If you don't know, just tell me.

Q33 I seem to get sick a little earlier than other people. Would you say that's… Read categories.

1. definitely true
2. mostly true
3. don't know
4. mostly false
5. definitely false

Q34 I am as healthy as anybody I know. Would you say that's … Read categories.

1. definitely true
2. mostly true
3. don't know
4. mostly false
5. definitely false

Q35 I expect my health to get worse. Would you say that's… Read categories.

1. definitely true
2. mostly true
3. don't know
4. mostly false
5. definitely false

Q36 My health is excellent. Would you say that's… Read categories.

1. definitely true
2. mostly true
3. don't know
4. mostly false
5. definitely false

Thanks a lot.

The life and health status of the urban elderly people in China

With the development of economic and advancement of the society, the health of the people in our country has been improved greatly and the population of our country is ageing. More and more people become elderly and it's time to pay more attention to elderly people in our country.

How about the life and health status of the urban elderly people in China? What kind of diseases do they have suffered from? What kind of limitation do they have in their daily life? What kind of care do they have received from their family, community and the society? And what kind of needs do they expect to get?

These are some of the questions we hope the project will help to answer. The data from the study will be useful to obtain a general picture of the life and health status of the urban elderly people in China. This is important because it will be useful to development of policies related to population ageing and the care of older persons. The information may also help to understand why some elderly people are healthier than others.

Scientists can use the information from the study to obtain new knowledge about life, disease and health and the association between them. On the other hand, participants in the study will assess their life and health status and make clear their needs for care and others.

The project is a pilot programme and we will likely extend the project to a large scale, including the rural areas.

We use scientific random methods to select a few communities as the sample of the study. All elderly people in those communities who are 60 years and older are invited to participate the project. After consented to participation, you will be asked to answer some questions related to your life and health status using a questionnaire in your home, and some of you will be asked to take part in focus group discussions on your life and health.

This project has been approved by the Data Inspectorate and has been submitted to the Regional Committee for Medical Research Ethics. Your information will be treated confidentially and in a manner that ensure security. All personnel working on the project have signed a pledge of secrecy.

When the project has been completed, we will prepare a report based the data come from you as a whole, and the persons responsible for various supplementary studies will publish their results later on scientific magazines or journals.

Welcome to the life and health status study among elderly people.

Peking University
School of Public Health

University of Oslo
Institute of General Practice and Community Medicine

Declaration of Consent ---- The life and health status study among elderly people

Together with the letter of invitation, I have received the information on the life and health status study among elderly people. I am therefore informed about the purpose of the study. I know that I will be asked to answer some questions related to my life and health status using a questionnaire in my home. And I also know that some of us will be asked to take part in focus group discussion on our life and health status.

I am further aware that all information pertaining to myself will treated strictly confidentially. I know that the study has been approved by the Norwegian Data Inspectorate and has been submitted to the Regional Committee for Medical Research Ethics. I also know I can change my mind whenever to withdraw from the study without giving any reasons for my decision.

1. I agree to answer the questions related to my life and health status using a questionnaire in my home.
2. I agree to take part in a focus group discussion on our life and health status if I will be selected.
3. I agree that the information on my life and health status can be used in medical research.
4. I agree that any reports or scientific articles based on my information on my life and health status can be published on scientific magazines or journals openly.

Please cross out any item or items to which do not give your consent.

_____ _____

Place and date Signature